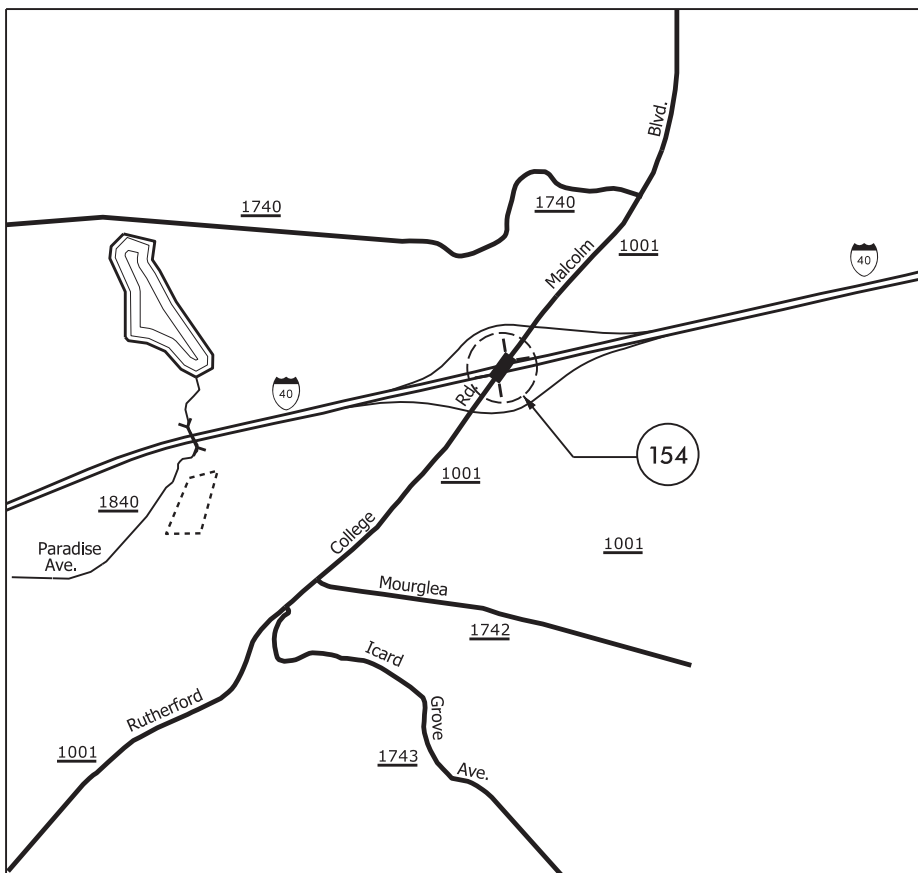


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

LOCATION: BRIDGE NO. 110154 ON SR-1001 OVER I-40

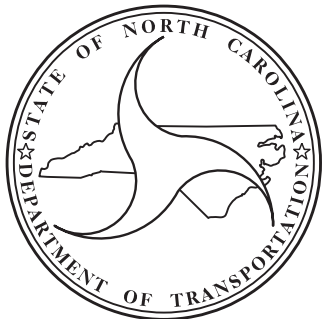
TYPE OF WORK: BRIDGE REHABILITATION: REMOVAL OF EXISTING STEEL GIRDER SUPERSTRUCTURE AND REPLACEMENT WITH CORED SLABS, PARTIAL SUBSTRUCTURE REPLACEMENT, CONCRETE WEARING SURFACE OVERLAY, AND SHOTCRETE AND CONCRETE REPAIRS TO SUBSTRUCTURE.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.15C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.15C		P.E.	
41665.15C		CONST.	

PROJECT: 41665.15C

CONTRACT NO.: DM00414



DESIGN DATA

BURKE COUNTY
BRIDGE No. 110154 ADT 2019 =15,000

PROJECT LENGTH

BURKE COUNTY
BRIDGE No. 110154 =0.051 MILE

Prepared in the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

LETTING DATE :
FEBRUARY 21, 2024

ADAM COLE, P.E.
PROJECT ENGINEER

K. P. SEDAI, P.E.
PROJECT DESIGN ENGINEER

PROJECT: 41665.15C

CONTRACT NO.: DM00414

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

LOCATION: BRIDGE No. 110154 ON SR-1001 (MALCOLM BLVD) OVER I-40

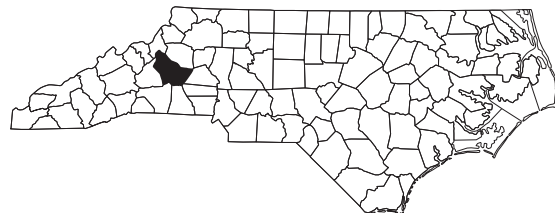
INDEX OF STRUCTURES SHEETS

<u>SHEET No.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
1A	INDEX OF SHEETS
SI-01 THRU SI-24	STRUCTURAL PLANS - BRIDGE NO. 110154
SD-01	TYPICAL CAP AND COLUMN REPAIR DETAILS
SN	STANDARD NOTES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.15C	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.15C		P.E.	
41665.15C		CONST.	

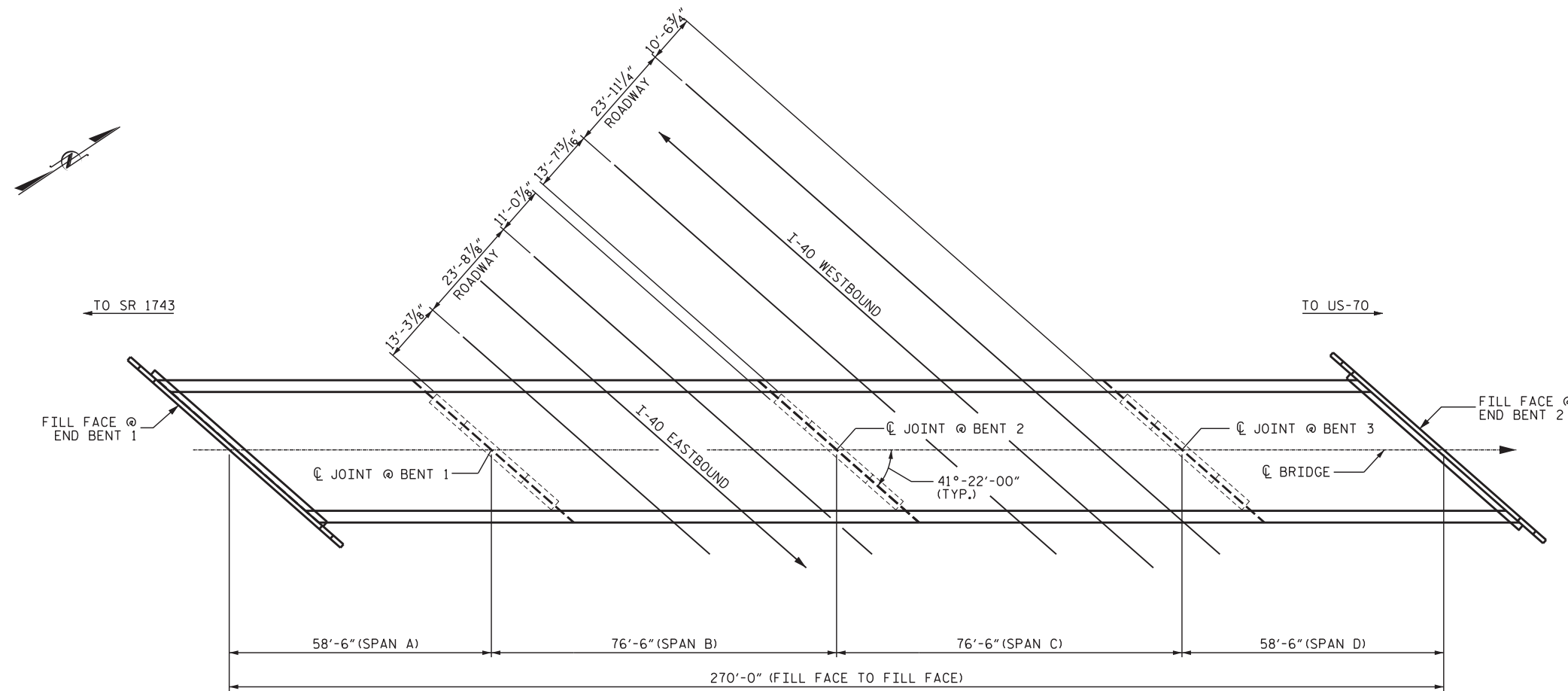
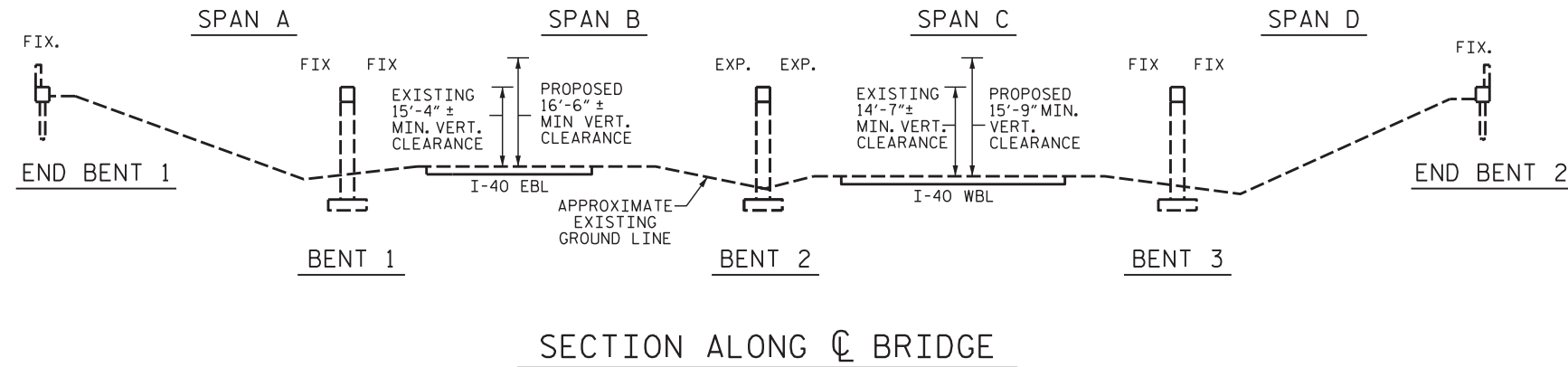
TYPE OF WORK:

BRIDGE PRESERVATION: REMOVAL OF EXISTING STEEL GIRDER SUPERSTRUCTURE AND REPLACEMENT WITH CORED SLABS, PARTIAL SUBSTRUCTURE REPLACEMENT, CONCRETE WEARING SURFACE OVERLAY, AND SHOTCRETE AND CONCRETE REPAIRS TO SUBSTRUCTURE.



Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

NOTES
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 08/26/2021.
 BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS.

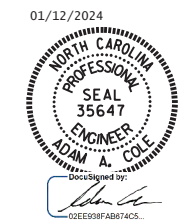


PLAN
 (PILES AND FOOTINGS NOT SHOWN FOR CLARITY)

SCOPE OF WORK

- REMOVE EXISTING BRIDGE SUPERSTRUCTURE.
- CONSTRUCT ADDITIONAL BENT CAP TO SUPPORT WIDER PRESTRESSED CONCRETE CORED SLAB SUPERSTRUCTURE.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE SHOTCRETE AND CONCRETE REPAIR AREAS ON SUBSTRUCTURE.
- REPLACE DECK WITH PRESTRESSED CONCRETE CORED SLAB DECK WITH VERTICAL CONCRETE BARRIER RAILS.
- INSTALL CONCRETE WEARING SURFACE OVERLAY.
- INSTALL APPROACH SLABS.
- PERFORM SHOTCRETE AND CONCRETE REPAIRS IN PREPARED AREAS.
- INSTALL FOAM JOINT SEALS

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.
 RESIDENT ENGINEER _____ DATE _____



PROJECT NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON
 SR 1001 (MALCOM BLVD.)
 OVER
 INTERSTATE 40

DRAWN BY : E. CABBELL DATE : 12/2020
 CHECKED BY : REZA KOUCHEKI DATE : 03/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-01
1			3			TOTAL SHEETS
2			4			24

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH BRIDGE, SEE SPECIAL PROVISIONS.
- FOR PARTIAL REMOVAL OF EXISTING STRUCTURE NO. 110154, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.
- FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- ASSUMED LIVE LOAD= HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE "STANDARD NOTES" SHEET.

THE ELEVATION(S) AND CLEARANCE(S) SHOWN ON THE PLANS AT THE POINT(S) OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE ELEVATION(S) ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

ELEVATIONS INDICATED ON THESE PLANS ARE TAKEN FROM THE ORIGINAL BRIDGE PLANS FROM 1956. CONTRACTOR MUST VERIFY THE EXISTING ELEVATIONS AND ANY CORRELATIONS BETWEEN ORIGINAL AND CURRENT DATUM INFORMATION, THE ORIGINAL PLAN ELEVATIONS, AND THE EXISTING CURRENT ELEVATIONS.

PARTIAL REMOVAL OF EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING ONTO THE EXISTING ROADWAY BELOW. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

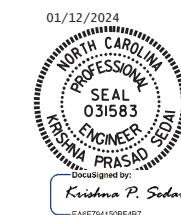
ANY DAMAGE TO EXISTING REINFORCING STEEL THAT IS TO REMAIN IN PLACE DURING THE CONTRACTOR'S OPERATION SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COST RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASE PAINT SHALL BE INCLUDED IN THE BID PRICES FROM ITEMS ASSOCIATED WITH THE CLEANING AND REPAINTING OF BRIDGES.

- FOR PAVEMENT MARKINGS, SEE PAVEMENT MARKING PLANS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES.
- PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 150 TONS PER PILE.
- DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- PILES AT BENT NO.3 ARE DESIGNED FOR A FACTOR RESISTANCE OF 90 TONS PER PILE.
- DRIVE PILES AT BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- PILES AT BENT NO.3 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE.
- DRIVE PILES AT BENT NO. 3 TO A REQUIRE DRIVING RESISTANCE OF 150 TONS PER PILE.
- THE CONTRACTOR SHALL SURVEY THE BRIDGE TO VERIFY THE ELEVATIONS SHOWN ON THE PLANS.

PROJECT NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

LOCATION SKETCH

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-02
1			3			TOTAL SHEETS
2			4			24

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

BRIDGE COORDINATES

LAT.: 35.7338
 LONG.: -81.5304

DRAWN BY : REZA KOUCHEKI DATE : 07/2022
 CHECKED BY : J. A. TILLMAN DATE : 07/2022

BILL OF MATERIAL

BRIDGE NO. 110154	INCIDENTAL MILLING	ASPHALT CONCRETE BASE COURSE TYPE B25.0C	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	ASPHALT BINDER FOR PLANT MIX	ASBESTOS ASSESSMENT	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOOR	CLASS A CONCRETE	BRIDGE APPROACH SLAB	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILE	VERTICAL CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	SHOTCRETE REPAIRS	FOAM JOINT SEALS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB
	SQ. YDS.	TONS	TONS	TONS	LUMP SUM	SO. FT.	SO. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	EA.	LIN. FT.	LIN. FT.	LUMP SUM	CU. FT.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE						7,377.0	7,774.0		LUMP SUM					533.2	LUMP SUM			2,660.4
END BENT 1								5.5		1,608.0								
BENT 1								24.0		5,137.0	678.0	4	160			9.2		
BENT 2								23.4		5,134.0	678.0	4	160			56.7		
BENT 3								23.4		5,134.0	678.0	4	140			50.6		
END BENT 2								5.5		1,598.0								
TOTALS	309.3	30.0	30.0	4	LUMP SUM	7,377.0	7,774.0	81.8	LUMP SUM	18,611.0	2,034.0	12	460	533.2	LUMP SUM	116.5	LUMP SUM	2,660.4

BRIDGE NO. 110154	FIELD MEASURING	PARTIAL REMOVAL OF EXISTING STRUCTURE	TYPE I APPROACH FILL	EPOXY COATING
	LUMP SUM	LUMP SUM	LUMP SUM	SO. FT.
SUPERSTRUCTURE				
END BENT 1				
BENT 1				121.0
BENT 2				121.0
BENT 3				121.0
END BENT 2				
TOTALS	LUMP SUM	LUMP SUM	LUMP SUM	363.0

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BILL OF MATERIAL

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT ITEM(S) LISTED BELOW WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEM(S) LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK ITEMS HAVE BEEN PROVIDED IN THE PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED.
UNANTICIPATED ITEMS:

1. CONCRETE REPAIRS CU. FT.

DRAWN BY : REZA KOUCHEKI/E. BAYISSA DATE : 01/2024
CHECKED BY : J. A. TILLMAN DATE : 01/2024

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-03
1			3			TOTAL SHEETS
2			4			24

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inn)	N/A	1	1.088	--	1.75	0.170	2.009	B	I	37.400	0.605	1.869	B	I	67.320	0.80	0.198	1.088	B	I	37.400		
	HL-93(OPr)	N/A	--	2.423	--	1.35	0.170	2.604	B	I	37.400	0.605	2.423	B	I	67.320	N/A	--	--	--	--	--		
	HS-20(Inn)	36.000	2	1.432	51.541	1.75	0.170	2.643	B	I	37.400	0.605	2.354	B	I	67.320	0.80	0.198	1.432	B	I	37.400		
	HS-20(OPr)	36.000	--	3.051	109.844	1.35	0.170	3.426	B	I	37.400	0.605	3.051	B	I	67.320	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.249	43.863	1.40	0.170	7.497	B	I	37.400	0.605	7.029	B	I	67.320	0.80	0.198	3.249	B	I	37.400	
		SNGARBS2	20.000	--	2.414	48.277	1.40	0.170	5.570	B	I	37.400	0.605	4.990	B	I	67.320	0.80	0.198	2.414	B	I	37.400	
		SNAGRIS2	22.000	--	2.283	50.222	1.40	0.170	5.268	B	I	37.400	0.605	4.628	B	I	67.320	0.80	0.198	2.283	B	I	37.400	
		SNCOTTS3	27.250	--	1.617	44.053	1.40	0.170	3.730	B	I	37.400	0.605	3.508	B	I	67.320	0.80	0.198	1.617	B	I	37.400	
		SNAGGRS4	34.925	--	1.348	47.083	1.40	0.170	3.111	B	I	37.400	0.605	2.906	B	I	67.320	0.80	0.198	1.348	B	I	37.400	
		SNS5A	35.550	--	1.319	46.874	1.40	0.170	3.043	B	I	37.400	0.605	2.940	B	I	67.320	0.80	0.198	1.319	B	I	37.400	
		SNS6A	39.950	--	1.209	48.282	1.40	0.170	2.789	B	I	37.400	0.605	2.680	B	I	67.320	0.80	0.198	1.209	B	I	37.400	
	SNS7B	42.000	--	1.151	48.337	1.40	0.170	2.656	B	I	37.400	0.605	2.630	B	I	67.320	0.80	0.198	1.151	B	I	37.400		
	TTST	TNAGRIT3	33.000	--	1.473	48.623	1.40	0.170	3.400	B	I	37.400	0.605	3.191	B	I	67.320	0.80	0.198	1.473	B	I	37.400	
		TNT4A	33.075	--	1.480	48.937	1.40	0.170	3.414	B	I	37.400	0.605	3.113	B	I	67.320	0.80	0.198	1.480	B	I	37.400	
		TNT6A	41.600	--	1.209	50.278	1.40	0.170	2.789	B	I	37.400	0.605	2.796	B	I	67.320	0.80	0.198	1.209	B	I	37.400	
		TNT7A	42.000	--	1.214	50.989	1.40	0.170	2.801	B	I	37.400	0.605	2.741	B	I	67.320	0.80	0.198	1.214	B	I	37.400	
		TNT7B	42.000	--	1.254	52.686	1.40	0.170	2.895	B	I	37.400	0.605	2.570	B	I	67.320	0.80	0.198	1.254	B	I	37.400	
		TNAGRIT4	43.000	--	1.194	51.362	1.40	0.170	2.756	B	I	37.400	0.605	2.489	B	I	67.320	0.80	0.198	1.194	B	I	37.400	
TNAGT5A		45.000	--	1.127	50.704	1.40	0.170	2.600	B	I	37.400	0.605	2.470	B	I	67.320	0.80	0.198	1.127	B	I	37.400		
TNAGT5B	45.000	3	1.114	50.112	1.40	0.170	2.570	B	I	37.400	0.605	2.367	B	I	67.320	0.80	0.198	1.114	B	I	37.400			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

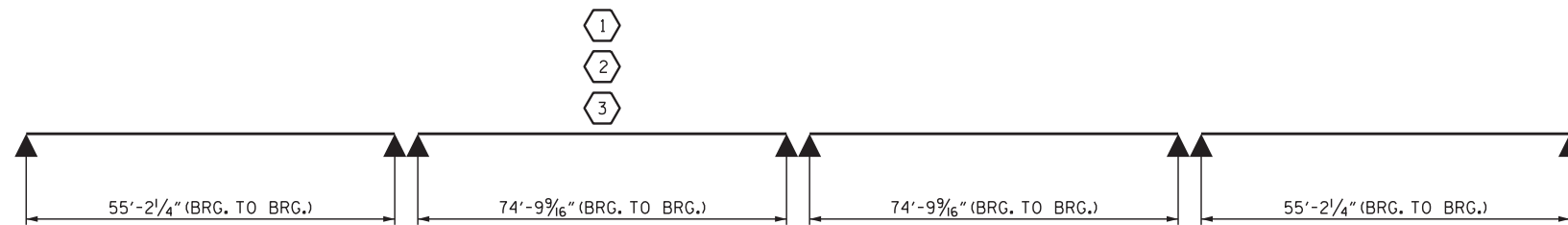
NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

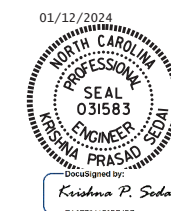
- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY
FOR SPAN 'A' THRU 'D'

PROJECT NO. 41665.15C
BURKE COUNTY
STATION: 110154

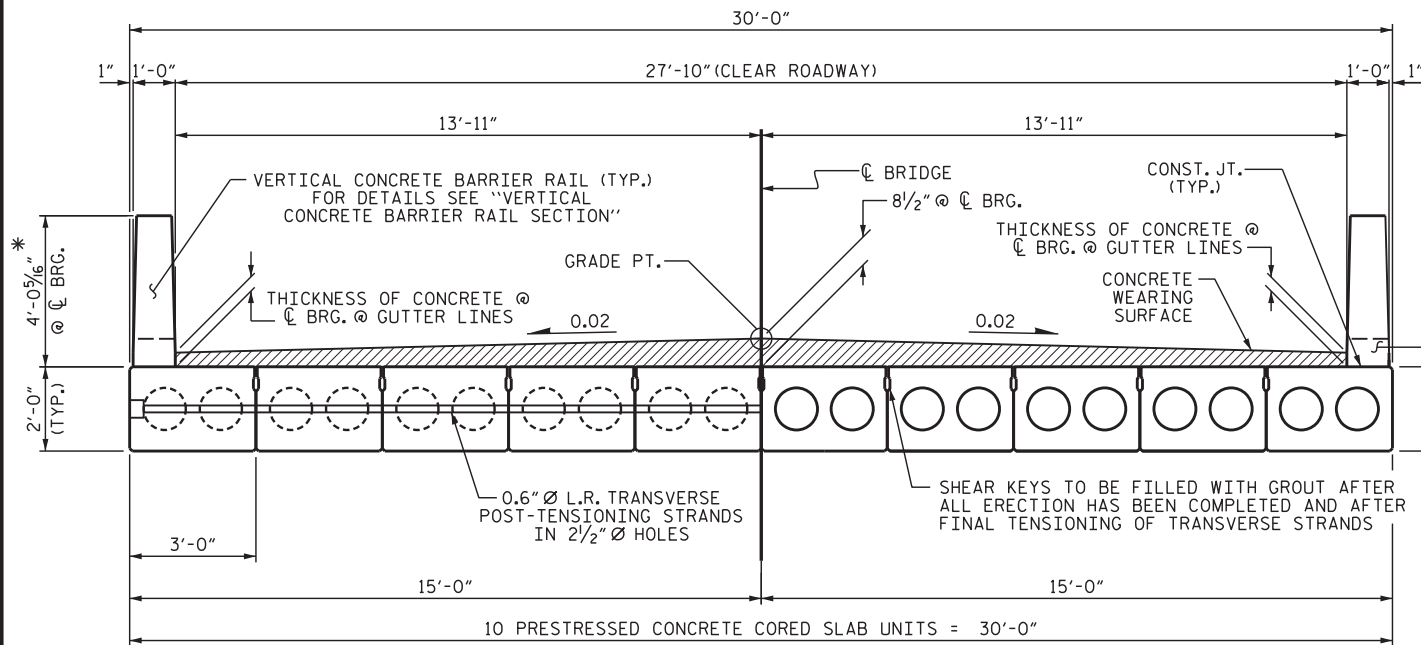


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
CORED SLAB UNIT
SPAN A THRU D
(NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : H.A. LOCKLEAR DATE : 03/2022
CHECKED BY : REZA KOUCHEKI DATE : 03/2022
DRAWN BY : CVC 6/10
CHECKED BY : DNS 6/10

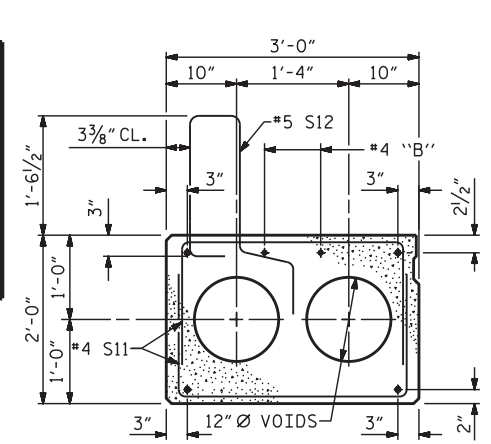
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-04
1			3			TOTAL SHEETS
2			4			24

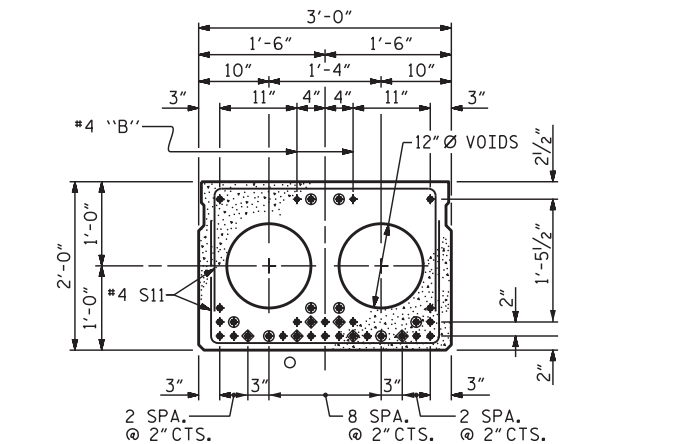


THICKNESS OF CONCRETE @ CL BRG. @ GUTTER LINES		
	LEFT SIDE	RIGHT SIDE
END BENT 1	3 5/16"	6 1/4"
BENT 1	4"	5 5/16"
BENT 2	5"	4 5/16"
BENT 3	5 5/16"	4"
END BENT 2	6 5/16"	3 3/4"

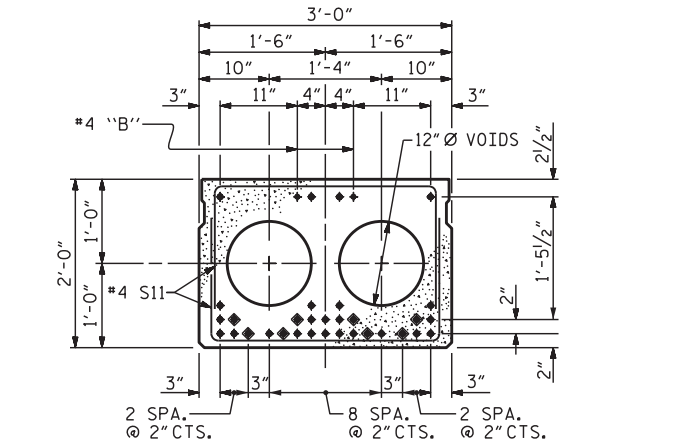
BARRIER RAIL HEIGHT @ CL BRG. @ GUTTER LINES		
	LEFT SIDE	RIGHT SIDE
END BENT 1	3'-9 5/16"	4'-0 1/4"
BENT 1	3'-10"	3'-11 5/16"
BENT 2	3'-11"	3'-10 5/16"
BENT 3	3'-11 5/16"	3'-10"
END BENT 2	4'-0 5/16"	3'-9 3/4"



EXTERIOR SLAB SECTION
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION (SPAN A & D UNIT)
(24 STRANDS REQUIRED)



INTERIOR SLAB SECTION (SPAN B & C UNIT)
(32 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

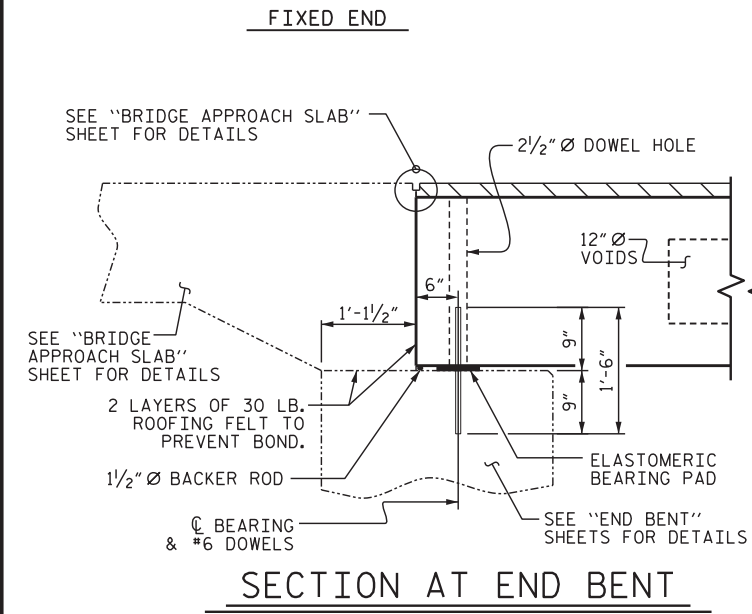
- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

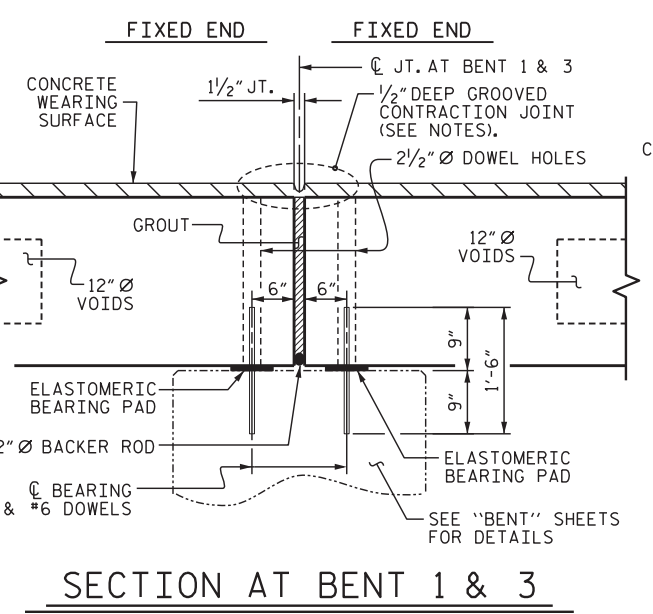
HALF SECTION AT INTERMEDIATE DIAPHRAGMS **HALF SECTION THROUGH VOIDS**

TYPICAL SECTION

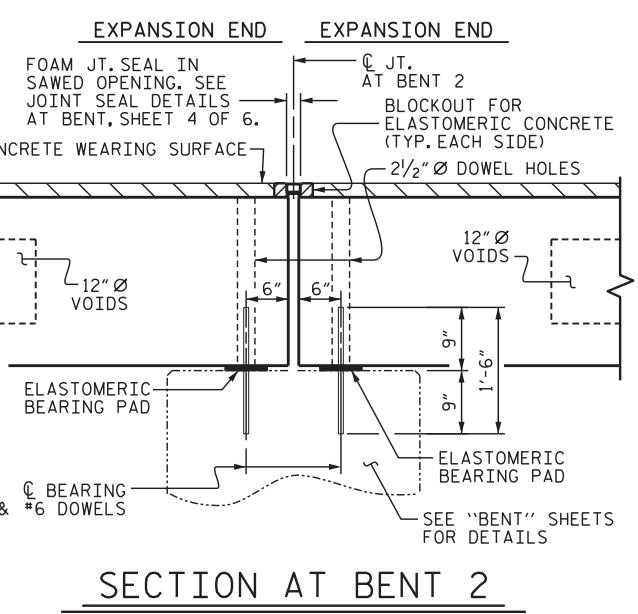
* - THE MAXIMUM BARRIER RAIL HEIGHT AND CONCRETE WEARING SURFACE THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND CONCRETE WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND CONCRETE WEARING SURFACE THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



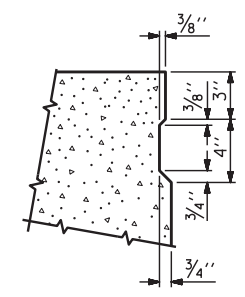
SECTION AT END BENT



SECTION AT BENT 1 & 3

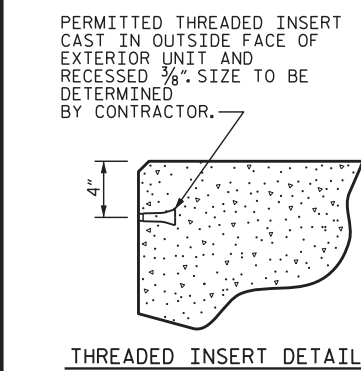


SECTION AT BENT 2

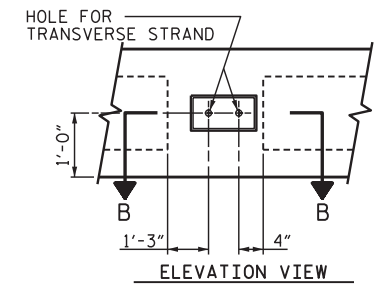


SHEAR KEY DETAIL

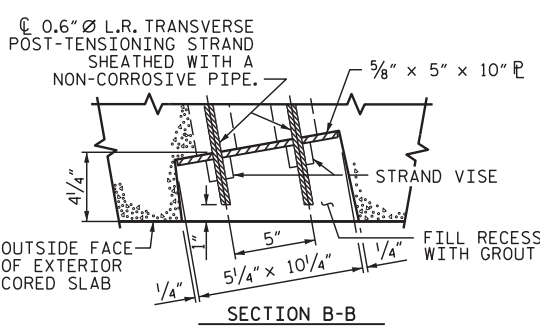
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



THREADED INSERT DETAIL

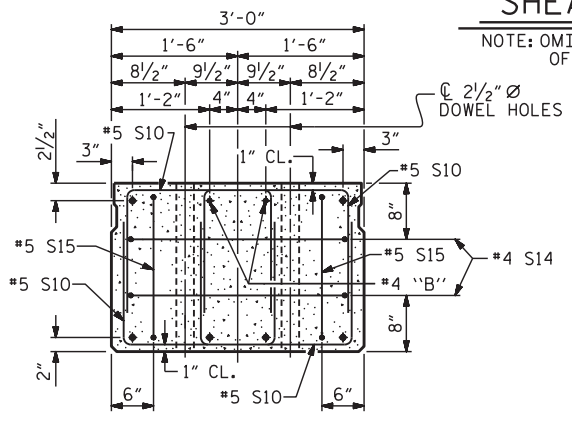


ELEVATION VIEW



SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

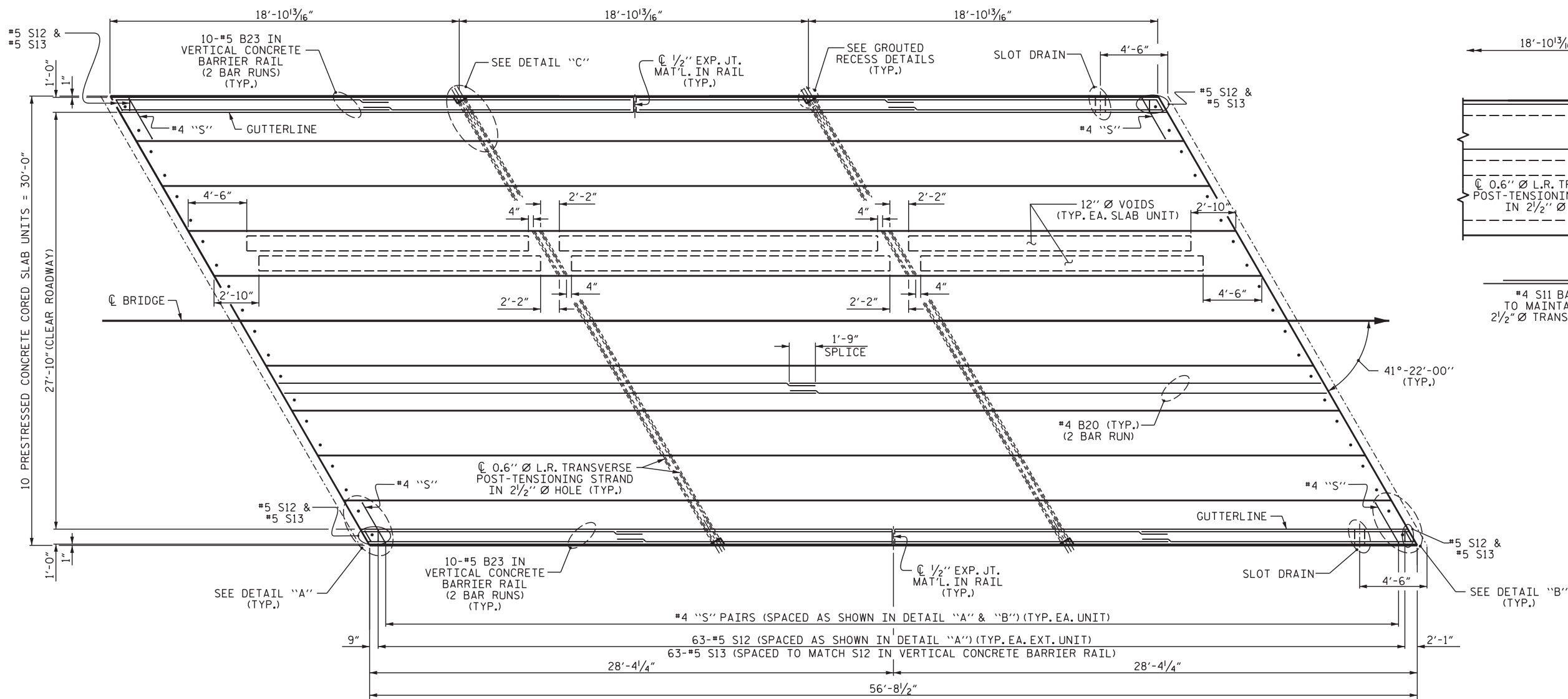
ASSEMBLED BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
 CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024
 DRAWN BY : MAA 6/10
 CHECKED BY : MKT 7/10 REV. 8/14 MAA/TMG

REVISIONS						SHEET NO. S1-05 TOTAL SHEETS 24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



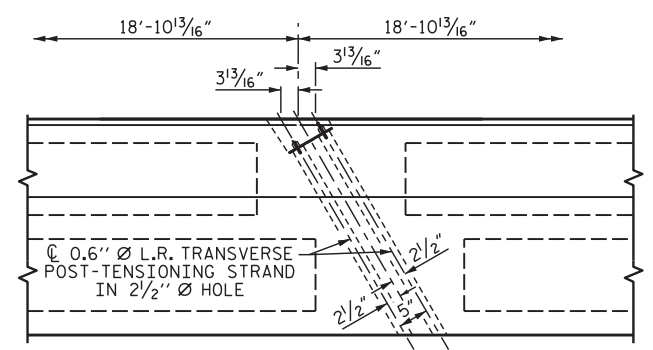
PROJECT NO. 41665.15C
 BURKE COUNTY
 STATION: 110154

SHEET 1 OF 6
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT



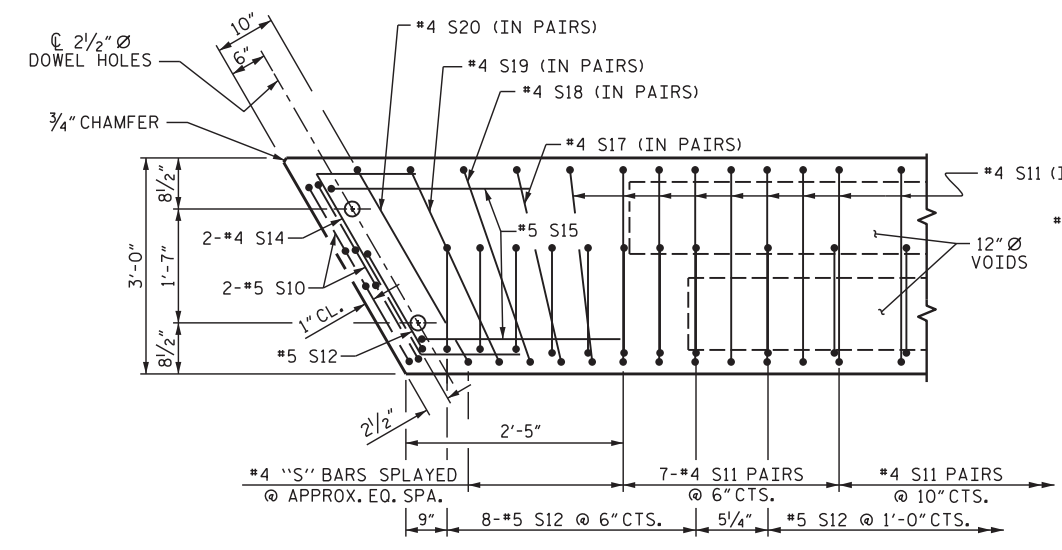
PLAN OF SPAN A

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS. ALSO, SPAN A SHOWN SPAN D SIMILAR.



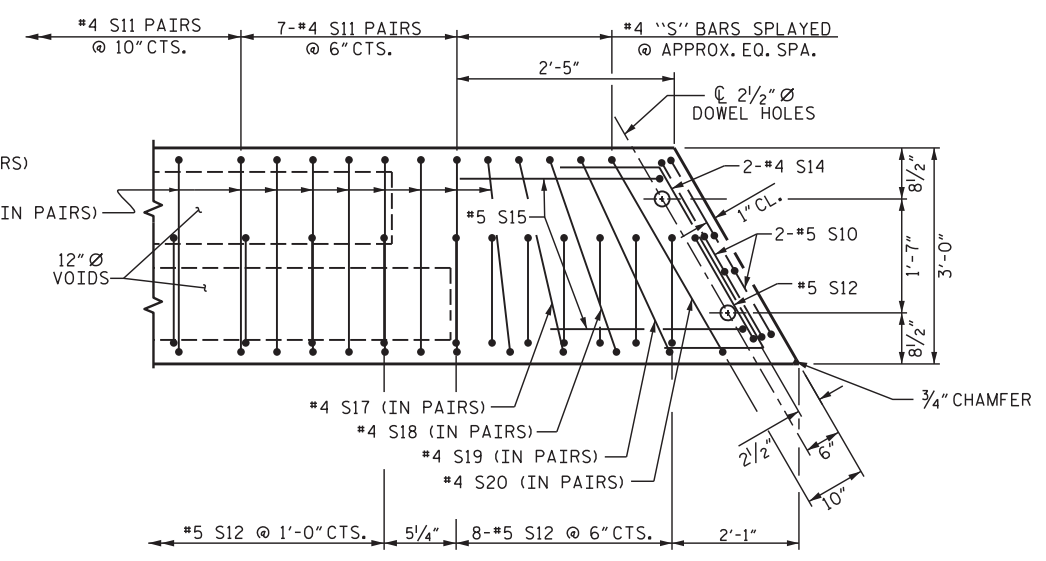
DETAIL "C"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

PROJECT NO. 41665.15C
 BURKE COUNTY
 BRIDGE NO. 110154

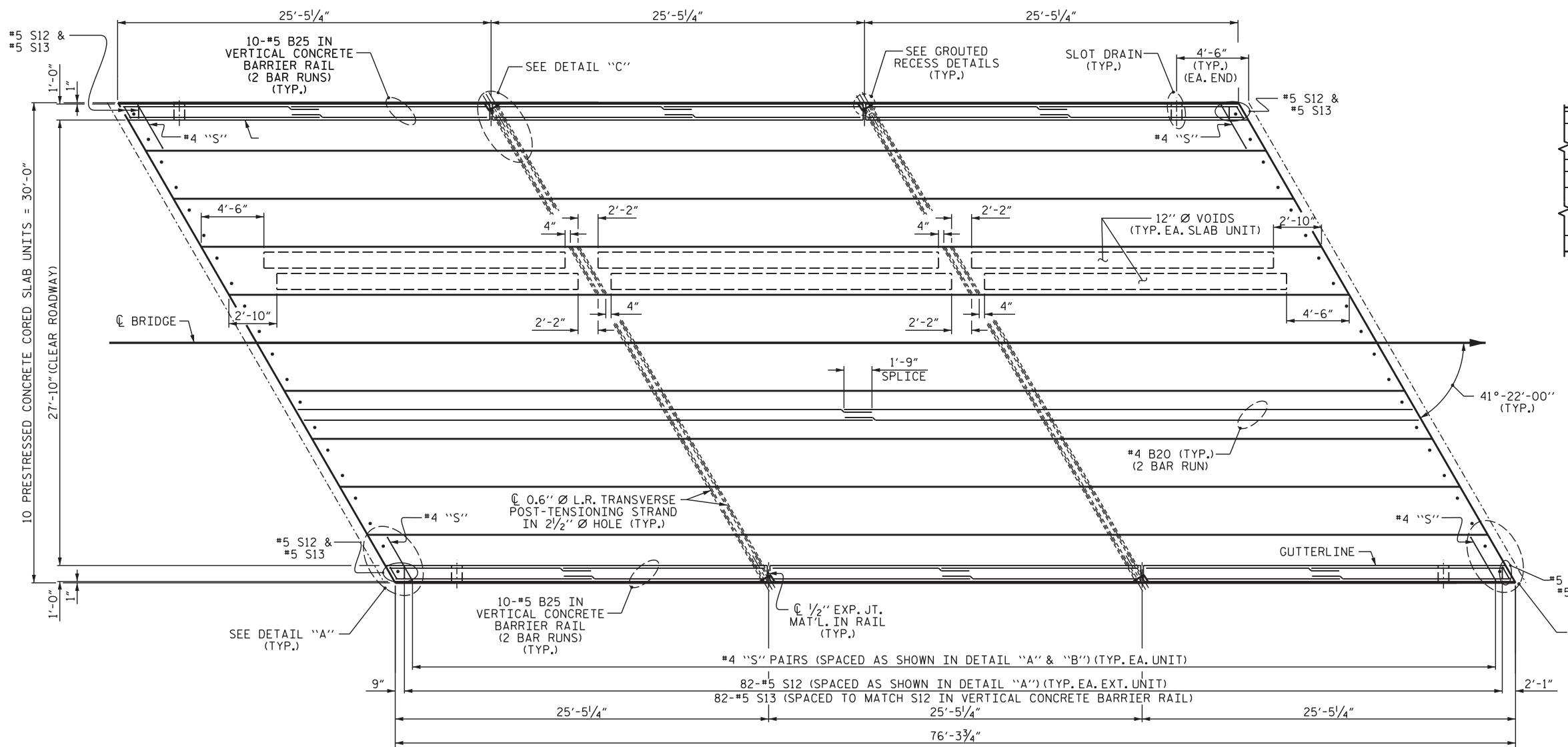
SHEET 2 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
 PLAN OF
 SPAN A & D

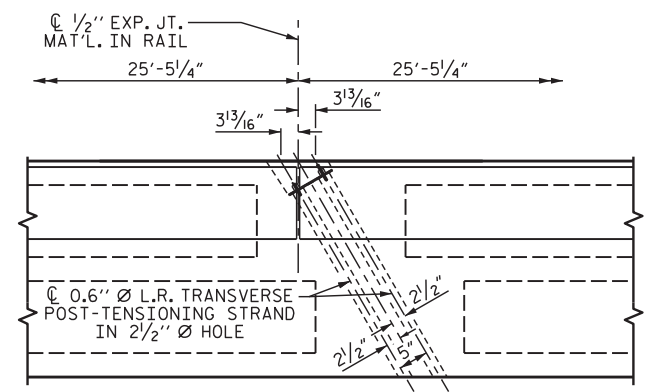
ASSEMBLED BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024	REV. 12/5/11	MAA/AAC
CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024	REV. 8/14	MAA/TMG
DRAWN BY : MAA 6/10		
CHECKED BY : MKT 7/10		

REVISIONS						SHEET NO. S1-06
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 24
2			4			



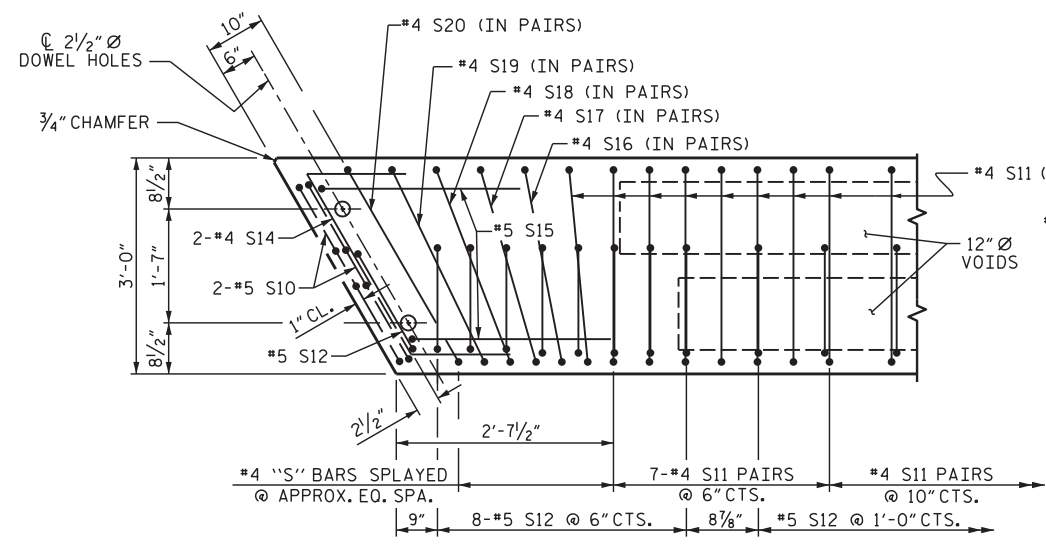
PLAN OF SPAN B

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS. ALSO, SPAN B SHOWN SPAN C SIMILAR.



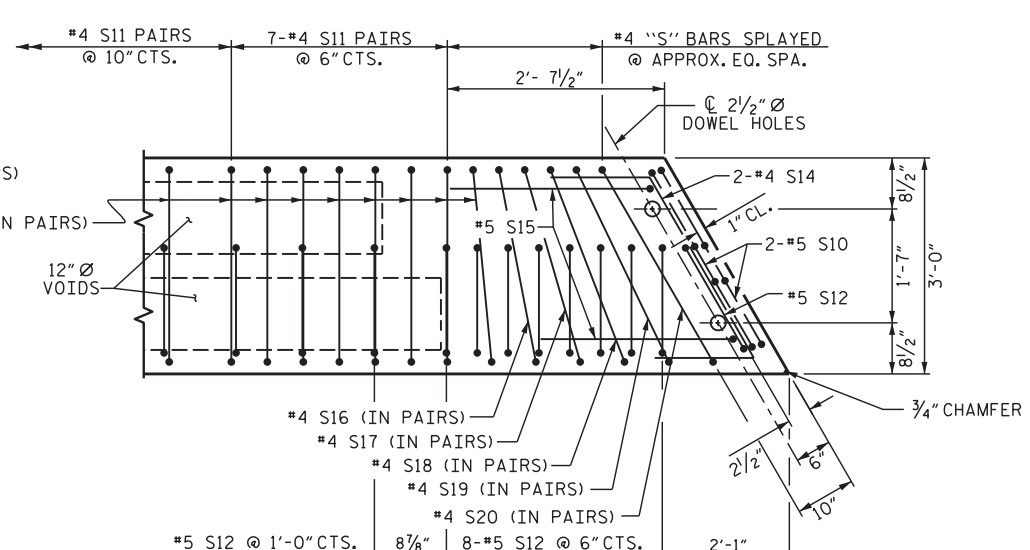
DETAIL "C"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

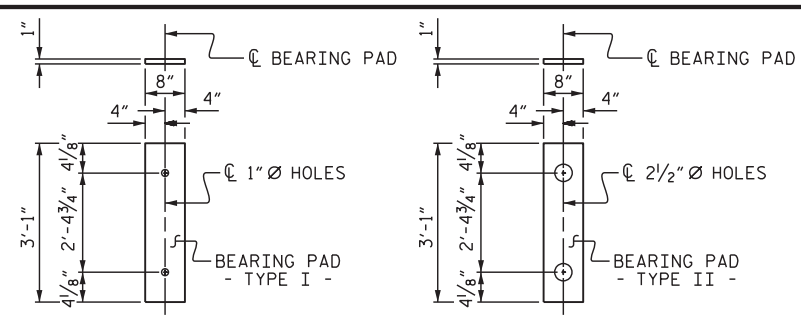
PROJECT NO. 41665.15C
 BURKE COUNTY
 BRIDGE NO. 110154
 SHEET 3 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
PLAN OF
SPAN B & C

ASSEMBLED BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
 CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024
 DRAWN BY : MAA 6/10 REV. 12/5/11 MAA/AAC
 CHECKED BY : MKT 7/10 REV. 8/14 MAA/TMG

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-07
1			3			TOTAL SHEETS
2			4			24

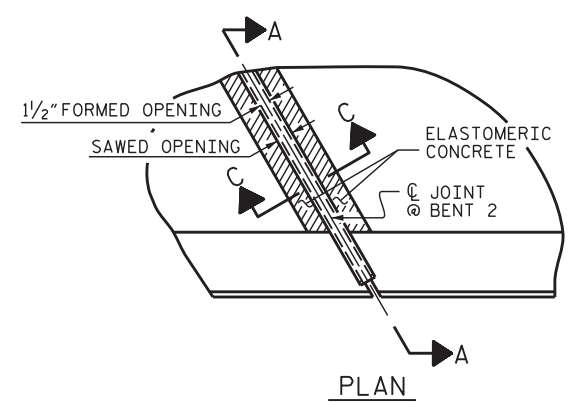


FIXED END
(TYPE I - 60 REQ'D)

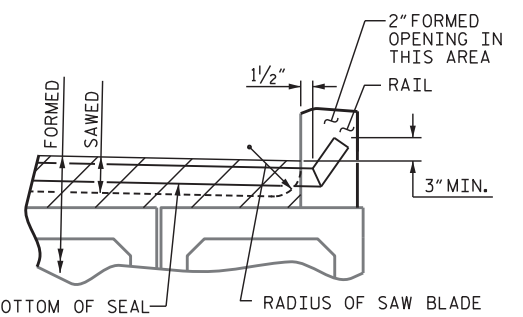
EXPANSION END
(TYPE II - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

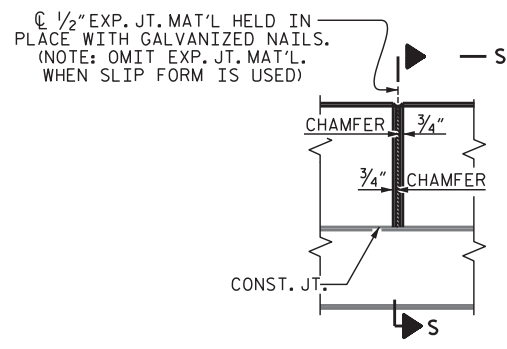
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



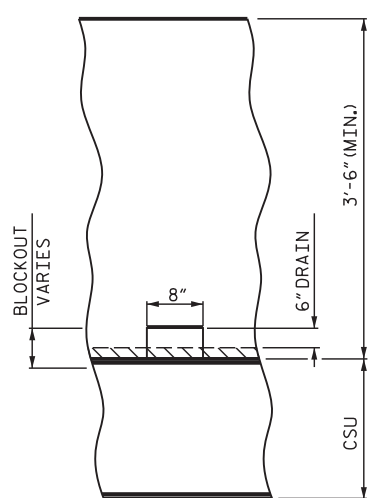
PLAN



SECTION A-A

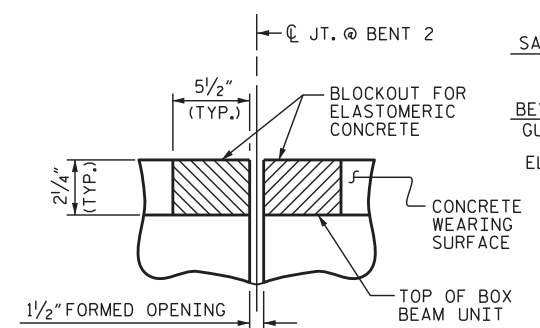


ELEVATION AT EXPANSION JOINTS

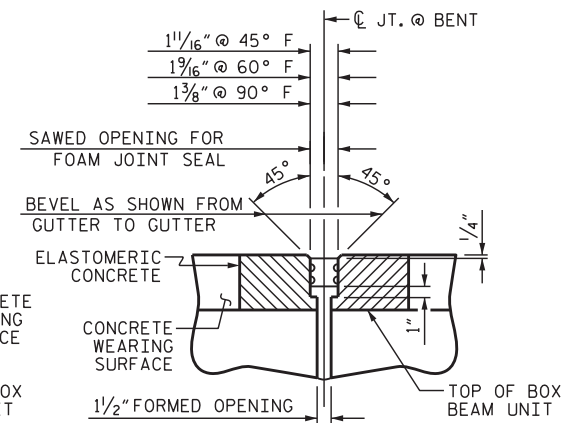


ELEVATION AT DRAIN

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.



SECTION C-C
FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)



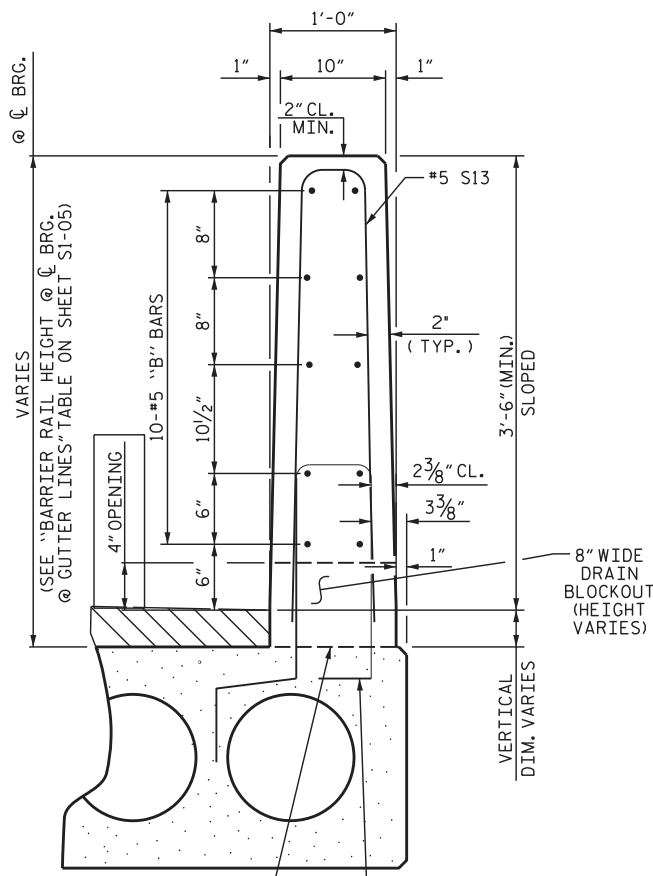
SECTION C-C
FOAM JOINT SEAL

JOINT SEAL DETAILS AT BENT 2

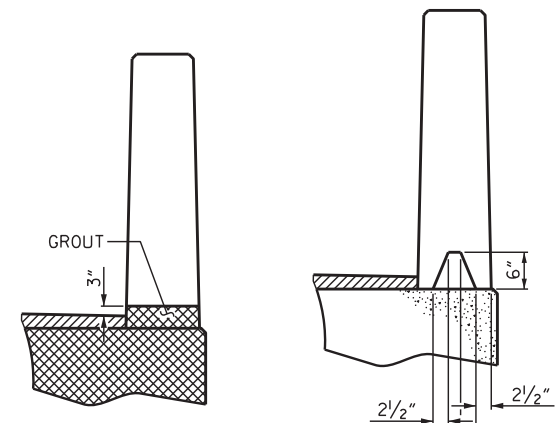
(SHOWING FULL DEPTH BLOCKOUT)

ELASTOMERIC CONCRETE	
BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
2	7.2
TOTAL	7.2

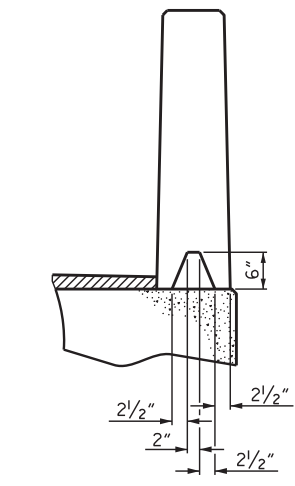
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



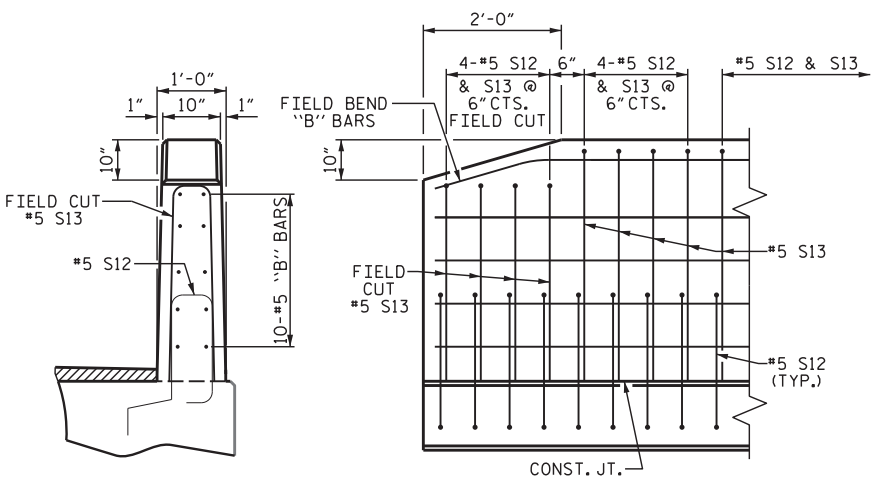
SECTION THRU RAIL



SECTION T-T
AT OPEN JOINT AT BENT



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



END VIEW

SIDE VIEW

END OF RAIL DETAILS

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

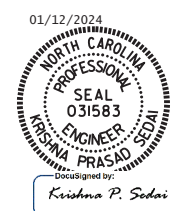
THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

APPLY EPOXY PROTECTIVE COATING TO EXTERIOR FACE OF THE EXTERIOR CORED SLAB UNIT THAT REQUIRE DRAINS IN THE BARRIER RAIL.

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE VERTICAL CONCRETE BARRIER RAIL SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

PROJECT NO. 41665.15C
BURKE COUNTY
STATION: 110154

SHEET 4 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

ASSEMBLED BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024
DRAWN BY : MAA 6/10
CHECKED BY : MKT 7/10
REV. 5/18
MAA/THC

VERTICAL CONCRETE BARRIER RAIL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-08
1			3			10/11 SHEETS
2			4			24

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DEAD LOAD DEFLECTION AND CAMBER	
56'-8 1/2" CORED SLAB UNIT	3'-0" x 2'-0" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1 5/16" ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER	
76'-3 3/4" CORED SLAB UNIT	3'-0" x 2'-0" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 3/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1 1/8" ↓
FINAL CAMBER	5/8" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
56'-8 1/2" UNIT			
EXTERIOR C.S.	4	56'-8 1/2"	226'-10"
INTERIOR C.S.	16	56'-8 1/2"	907'-4"
TOTAL			1134'-2"

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
76'-3 3/4" UNIT			
EXTERIOR C.S.	4	76'-3 3/4"	305'-3"
INTERIOR C.S.	16	76'-3 3/4"	1221'-0"
TOTAL			1526'-3"

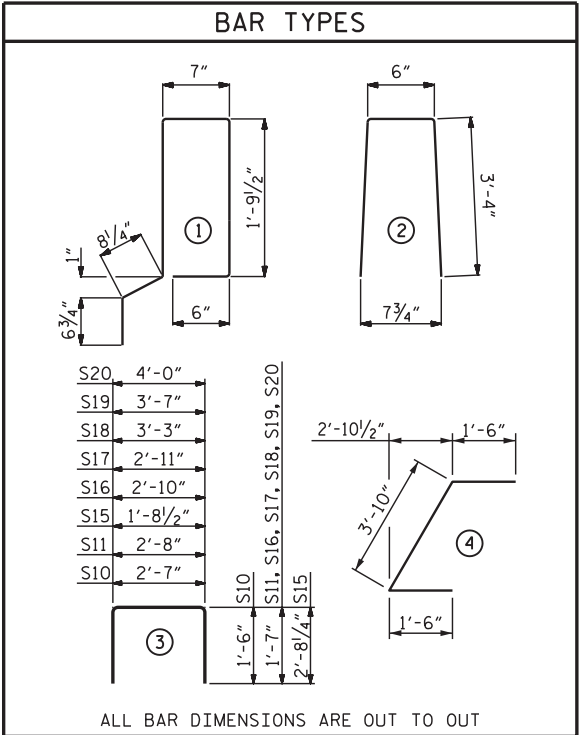
BILL OF MATERIAL FOR ONE 56'-8 1/2" CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B20	4	#4	STR	30'-3"	81	30'-3"	81
S10	8	#5	3	5'-7"	47	5'-7"	47
S11	132	#4	3	5'-10"	514	5'-10"	514
*S12	65	#5	1	6'-0"	408		
S14	4	#4	4	6'-10"	18	6'-10"	18
S15	4	#5	3	7'-1"	30	7'-1"	30
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-5"	17	6'-5"	17
S19	4	#4	3	6'-9"	18	6'-9"	18
S20	4	#4	3	7'-2"	19	7'-2"	19
REINFORCING STEEL				LBS.	760		760
* EPOXY COATED REINFORCING STEEL				LBS.	408		
6500 P.S.I. CONCRETE				CU. YDS.	9.9		9.9
0.6" Ø L.R. STRANDS				No.	24		24

BILL OF MATERIAL FOR ONE 76'-3 3/4" CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B22	4	#4	STR	39'-1"	104	39'-1"	104
S10	8	#5	3	5'-7"	47	5'-7"	47
S11	178	#4	3	5'-10"	694	5'-10"	694
*S12	84	#5	1	6'-0"	526		
S14	4	#4	4	6'-10"	18	5'-11"	18
S15	4	#5	3	7'-1"	30	7'-1"	30
S16	4	#4	3	6'-0"	16	6'-0"	16
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-5"	17	6'-5"	17
S19	4	#4	3	6'-9"	18	6'-9"	18
S20	4	#4	3	7'-2"	19	7'-2"	19
REINFORCING STEEL				LBS.	979		979
* EPOXY COATED REINFORCING STEEL				LBS.	526		
7500 P.S.I. CONCRETE				CU. YDS.	13.1		13.1
0.6" Ø L.R. STRANDS				No.	32		32

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
56'-8 1/2" UNIT						
*B23	80	160	#5	STR	16'-11"	2823
*S13	130	260	#5	2	7'-2"	1943
* EPOXY COATED REINFORCING STEEL				LBS.		4766
CLASS AA CONCRETE				CU. YDS.		30.7
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		227.2

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
76'-3 3/4" UNIT						
*B25	120	240	#5	STR	14'-7"	3651
*S13	168	336	#5	2	7'-2"	2512
* EPOXY COATED REINFORCING STEEL				LBS.		6163
CLASS AA CONCRETE				CU. YDS.		39.9
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		306.0

GUTTERLINE CONCRETE THICKNESS & RAIL HEIGHT		
	CONCRETE WEARING SURFACE THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
56'-8 1/2" UNITS	3 3/16"	3'-9 9/16"
76'-3 3/4" UNITS	4 1/4"	3'-10 1/4"



ALL BAR DIMENSIONS ARE OUT TO OUT

CONCRETE RELEASE STRENGTH	
UNIT	PSI
56'-8 1/2" UNITS	5100
76'-3 3/4" UNITS	5900

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. 41665.15C
BURKE COUNTY
STATION: 110154

SHEET 5 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

ASSEMBLED BY : H.A. LOCKLEAR DATE : 02/2021
CHECKED BY : REZA KOUCHEKI DATE : 07/2022
DRAWN BY : MAA 6/10
CHECKED BY : MKT 7/10
REV. 5/18 MAA/THC

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-09
2			4			10/14 SHEETS 24

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

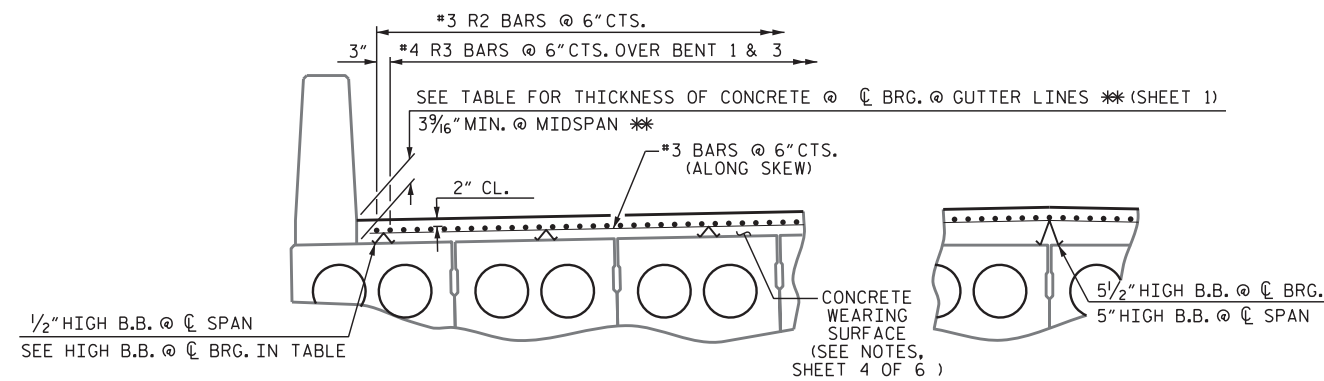
NOTES

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE VERTICAL CONCRETE BARRIER RAILS.

THE COST OF THE #3 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

ALL REINFORCING STEEL FOR CONCRETE WEARING SURFACE SHALL BE EPOXY COATED.



REINFORCING FOR CONCRETE WEARING SURFACE
 *BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

HIGH B.B. AT CL BRG. AT GUTTER LINES

	LEFT SIDE	RIGHT SIDE
END BENT 1	1/2"	3/4"
BENT 1	1"	3"
BENT 2	2"	2"
BENT 3	3"	1"
END BENT 2	3/4"	3/4"

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

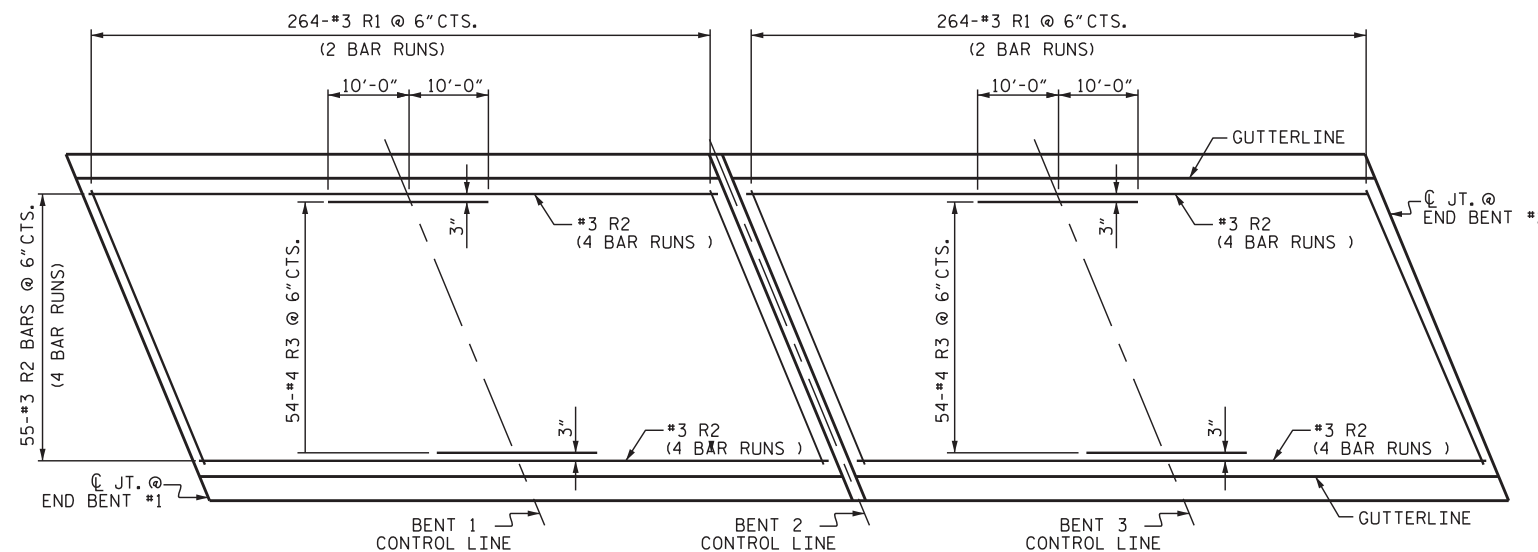
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*R1	1056	#3	STR	21'-6"	8537
*R2	440	#3	STR	34'-0"	5625
*R3	108	#4	STR	20'-0"	1443
*EPOXY COATED REINFORCING STEEL					LBS. 15605
CONCRETE WEARING SURFACE					SO. FT. 7377

GROOVING BRIDGE FLOORS

APPROACH SLABS	1217	SO. FT.
BRIDGE DECK	6557	SO. FT.
TOTAL	7774	SO. FT.

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-3"
#4	1'-8"

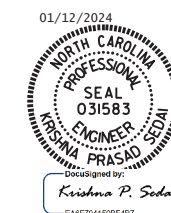


PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE #3 BARS CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

PROJECT NO. 41665.15C
BURKE COUNTY
 STATION: 110154

SHEET 6 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 CONCRETE WEARING
 SURFACE

ASSEMBLED BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
 CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024
 DRAWN BY : MAA 6/10
 CHECKED BY : MKT 7/10
 REV. 5/18
 MAA/THC

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-10
1			3			TOTAL SHEETS 24
2			4			24

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

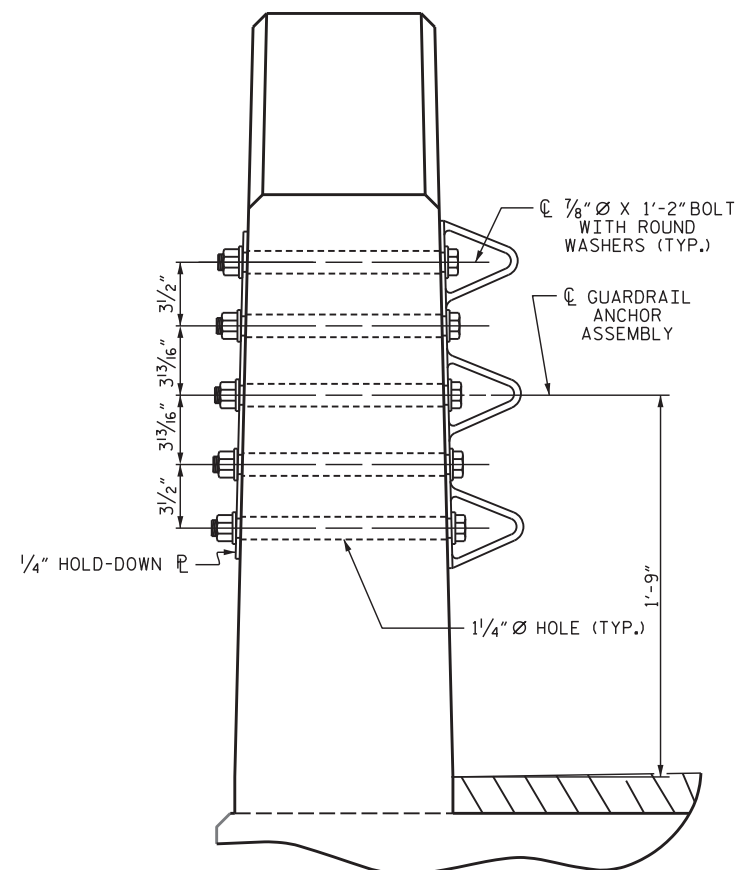
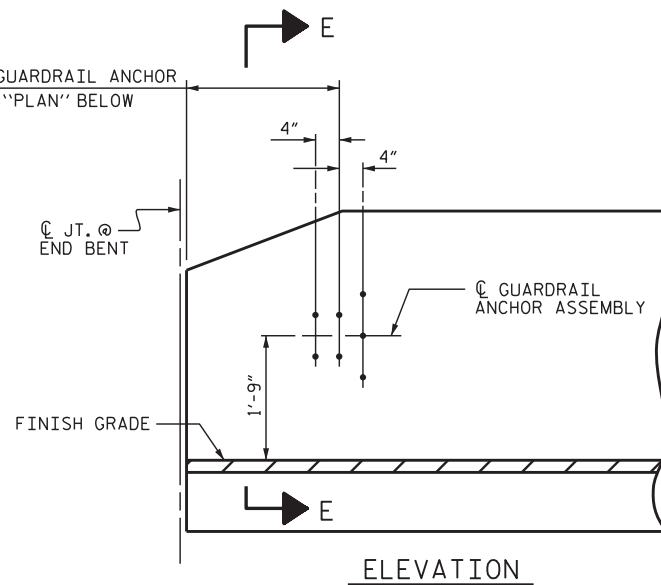
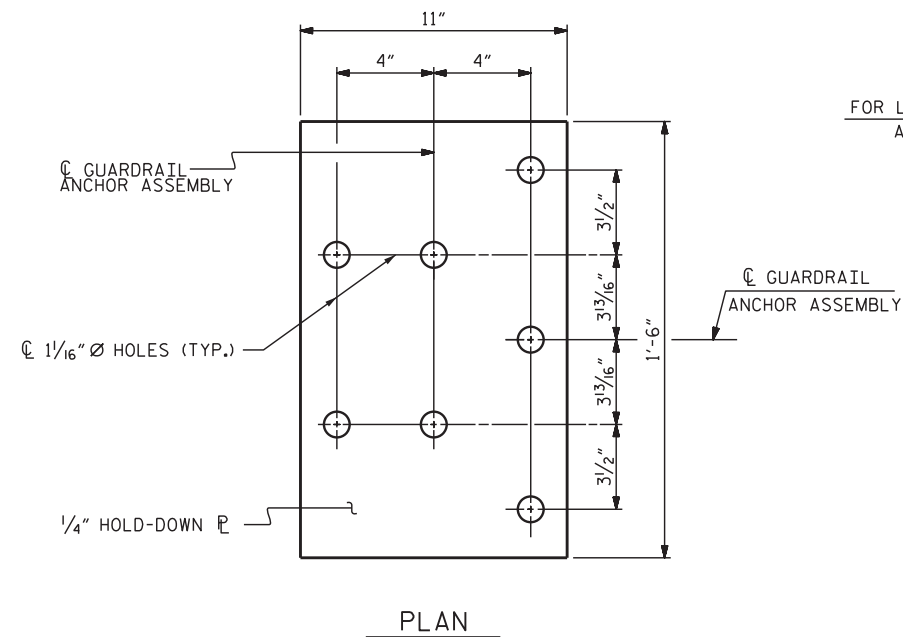
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY AND THE QUANTITY OF GUARDRAIL REPLACED SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

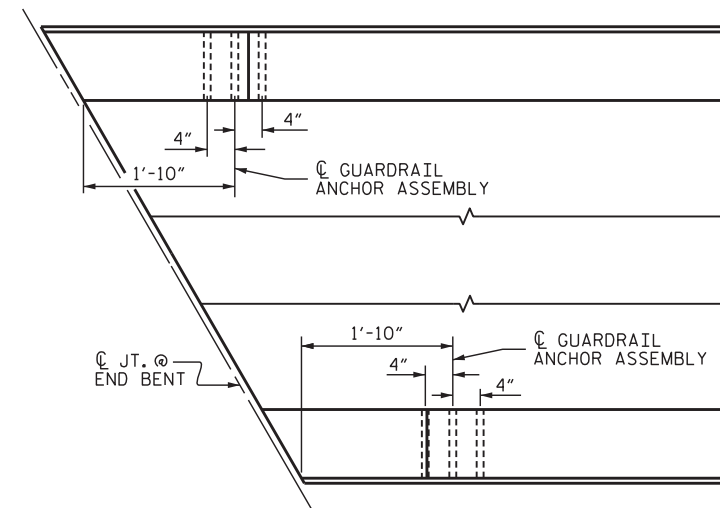
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

FOR GUARDRAIL PLACEMENT AND INSTALLATION, SEE NCDOT 2018 ROADWAY STANDARD DRAWINGS.

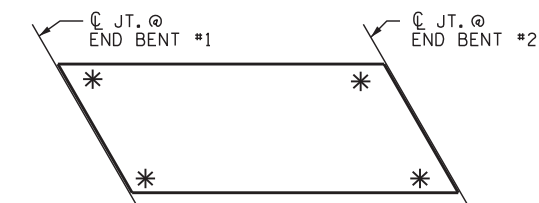


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

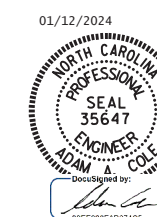
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 41665.15C
BURKE COUNTY
STATION: 110154



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE
DETAILS
FOR VERTICAL CONCRETE
BARRIER RAIL

ASSEMBLED BY : H.A. LOCKLEAR	DATE : 02/2021
CHECKED BY : REZA KOUCHEKI	DATE : 03/2022
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMC
CHECKED BY : CM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-11
1			3			TOTAL SHEETS
2			4			24

NOTES

REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

DIMENSIONS AND ELEVATIONS ARE BASED ON AS-BUILT DIMENSIONS AND SCOPING SURVEY INFORMATION. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS PRIOR TO CONSTRUCTION. REINFORCING AND CONCRETE CAP EXTENSIONS SHALL BE ADJUSTED TO MATCH FIELD VERIFIED DIMENSIONS PROVIDED THAT THE OUT-TO-OUT DIMENSIONS REMAIN AS DETAILED.

ELEVATIONS INDICATED ON THESE PLANS ARE TAKEN FROM THE ORIGINAL BRIDGE PLANS FROM 1956. CONTRACTOR MUST VERIFY THE EXISTING ELEVATIONS AND ANY CORRELATIONS BETWEEN ORIGINAL AND CURRENT DATUM INFORMATION, THE ORIGINAL PLAN ELEVATIONS, AND THE EXISTING CURRENT ELEVATIONS.

FOR END BENT CAP, BONDING AGENT SHALL BE PLACED APPROPRIATELY PRIOR TO PLACING NEW CONCRETE.

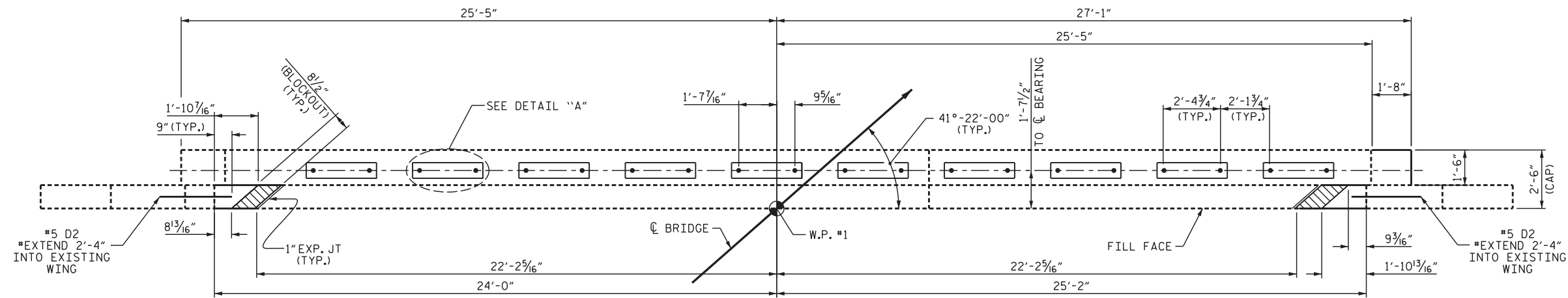
ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

BILL OF MATERIAL

END BENT #1

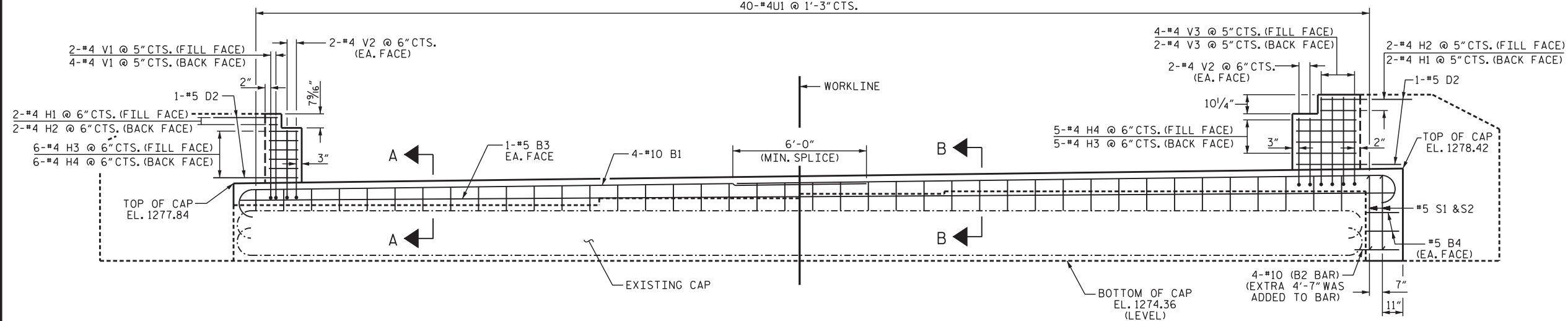
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	30'-5"	1047
B2	4	#10	STR	6'-1"	105
B3	2	#5	STR	52'-2"	109
B4	4	#5	STR	1'-6"	6
D1	20	#6	STR	1'-6"	45
D2	4	#5	STR	3'-1"	13
H1	4	#4	STR	6"	1
H2	4	#4	STR	1'-3"	3
H3	11	#4	STR	1'-6"	11
H4	11	#4	STR	2'-4"	17
S1	2	#5	2	9'-1"	19
S2	2	#5	3	2'-1"	4
U1	40	#4	4	6'-2"	165
V1	6	#4	5	4'-10"	19
V2	8	#4	5	4'-3"	23
V3	6	#4	5	5'-2"	21

REINFORCING STEEL 1608 LBS.
CLASS A CONCRETE 5.5 CU. YDS.

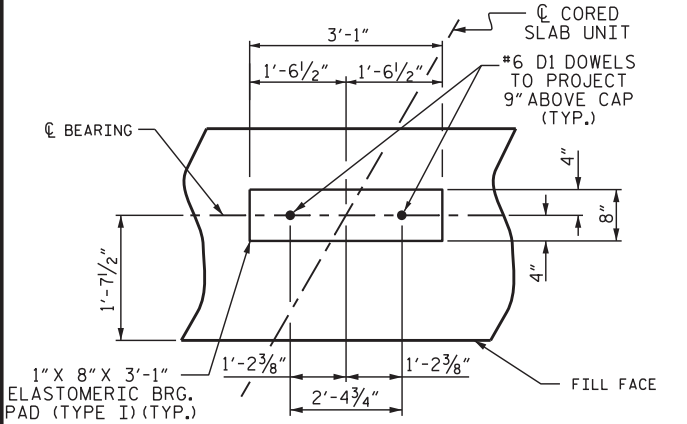


PLAN

40-#4U1 @ 1'-3" CTS.

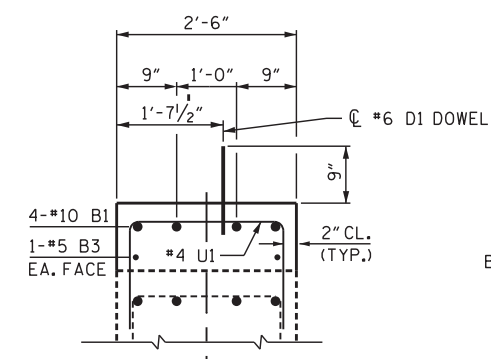


ELEVATION



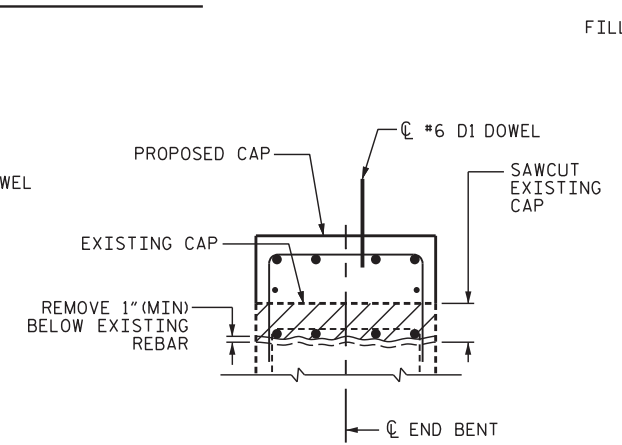
DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



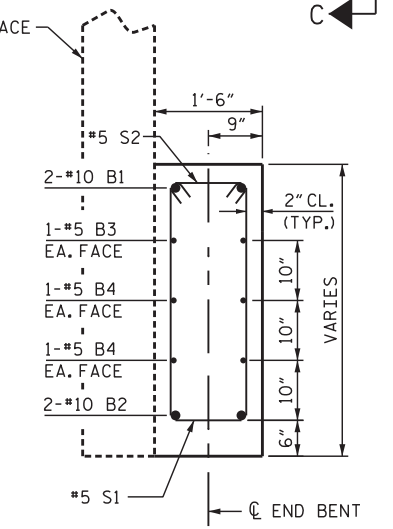
SECTION A-A

(BAR LOCATIONS)

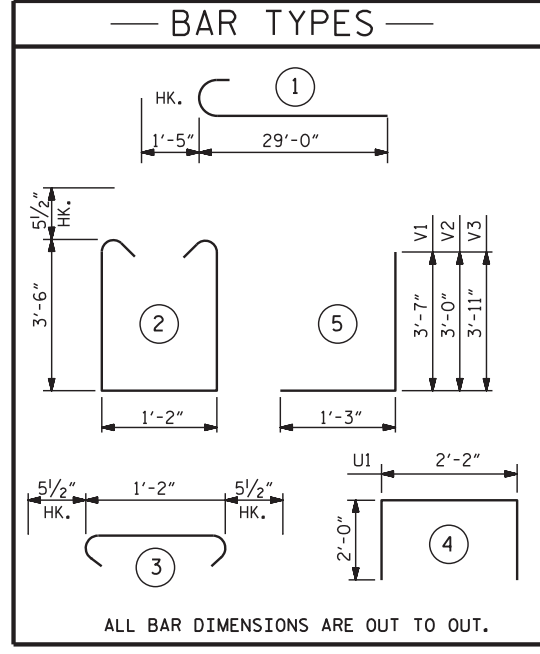


SECTION B-B

(SAW CUT DETAIL)
(EXISTING CAP TYP.)

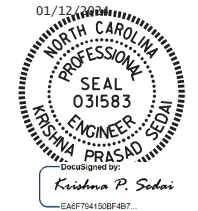


SECTION A-A



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

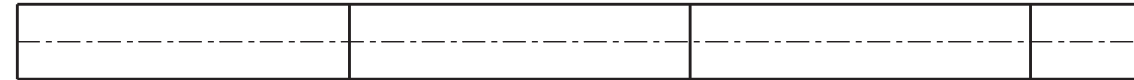


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1

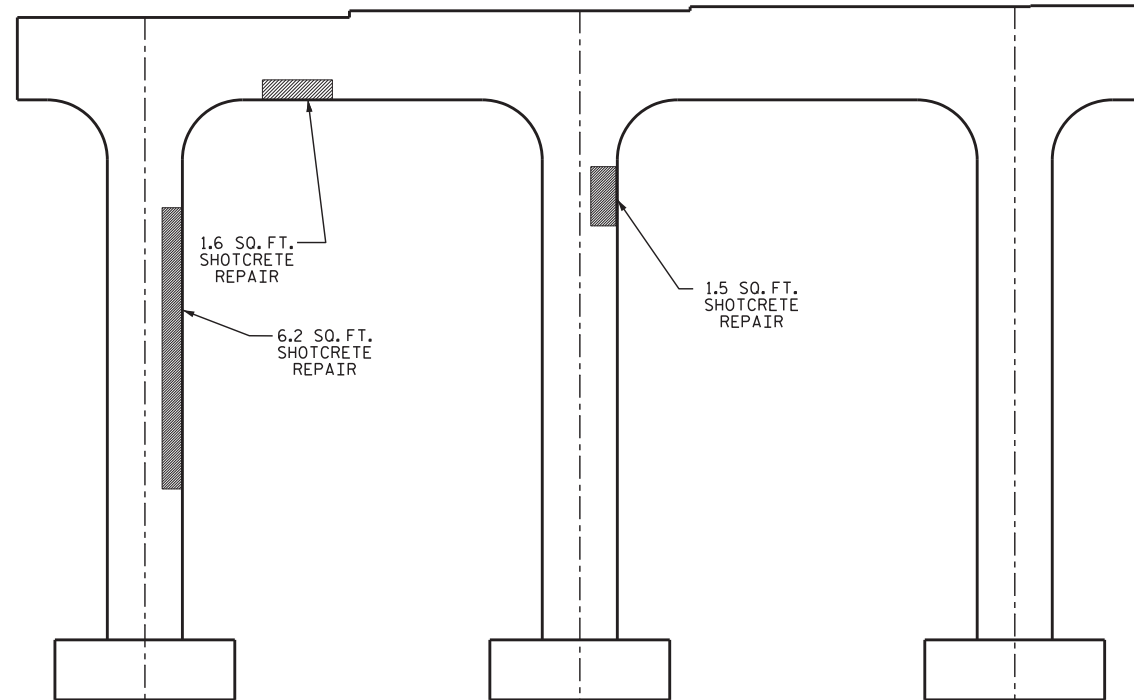
DRAWN BY: M. G. SHAIKH DATE: 07/2022
CHECKED BY: H. LOCKLEAR DATE: 11/2021
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE: 11/2021

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-12
1			3			TOTAL SHEETS
2			4			24



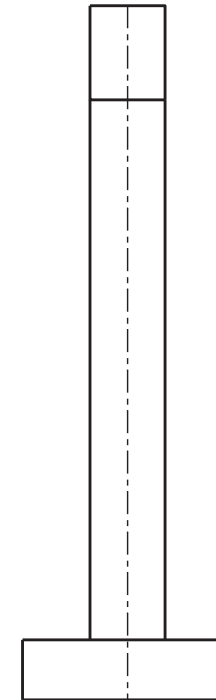
SPAN B
SPAN A

TOP OF CAP



ELEVATION

SPAN A | SPAN B



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 SPAN A FACE	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	1.6	0.8		
COLUMN	7.7	3.9		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.
TOP OF CAP		121.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

BENT INFORMATION IS TAKEN FROM THE ROUTINE INSPECTION REPORT DATED 08/26/2021.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

SHOTCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CAP REPAIRS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

FOR BENT WIDENING DETAILS, SEE SHEETS S1-19 THRU S1-21.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 41665.15C

BURKE COUNTY

BRIDGE NO. 110154

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

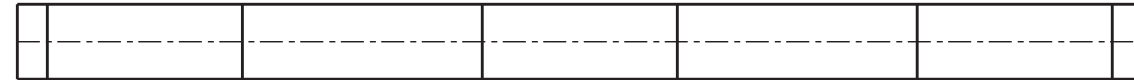
BENT 1
SPAN A FACE

DRAWN BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024

1/12/2024
S:\DPG3\Projects\41665.13A\Final Plans\41665.15C\110154 Final Plans\401.070.41665.15C.SMU. B1A.S13.110154.dgn
ksedai

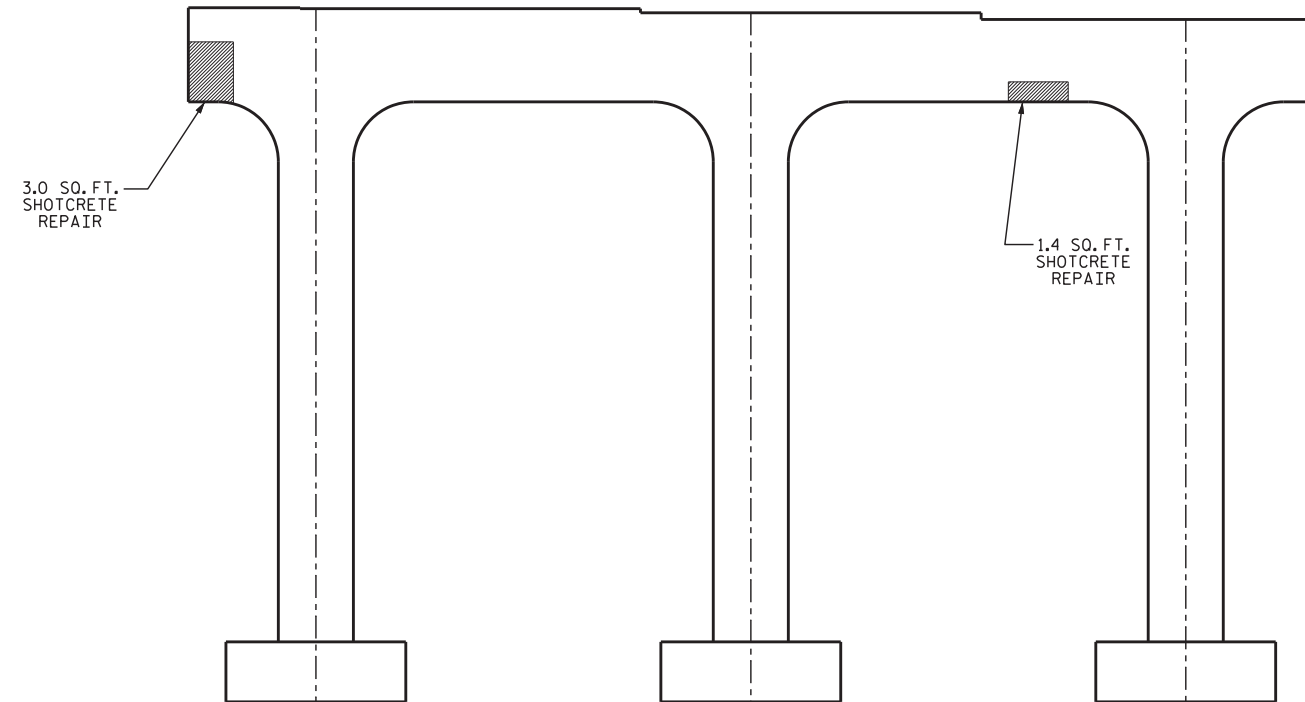
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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-13
1			3			TOTAL SHEETS
2			4			24



SPAN B
SPAN A

BOTTOM OF CAP

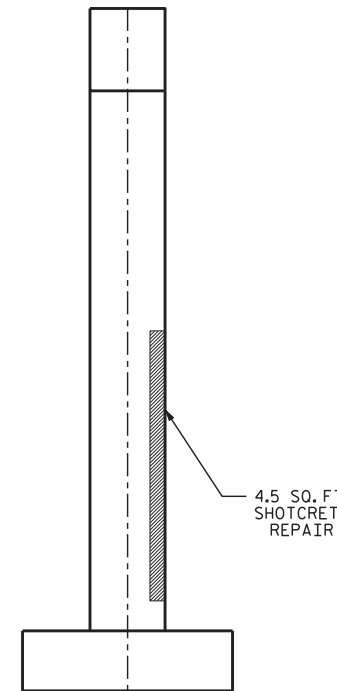


3.0 SQ. FT. SHOTCRETE REPAIR

1.4 SQ. FT. SHOTCRETE REPAIR

ELEVATION

SPAN B | SPAN A



4.5 SQ. FT. SHOTCRETE REPAIR

END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 SPAN B FACE	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	4.4	2.2		
COLUMN	4.5	2.3		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

BENT INFORMATION IS TAKEN FROM THE ROUTINE INSPECTION REPORT DATED 08/26/2021.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

SHOTCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

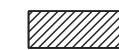


FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CAP REPAIRS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

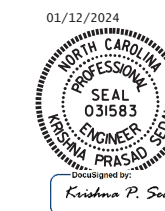
FOR BENT WIDENING DETAILS, SEE SHEETS S1-19 THRU S1-21.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  ERI - EPOXY RESIN INJECTION

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

SHEET 2 OF 2



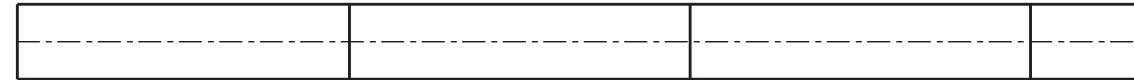
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
SPAN B FACE

DRAWN BY : H.A. LOCKLEAR DATE : 10/2021
CHECKED BY : REZA KOUICHEKI DATE : 03/2022

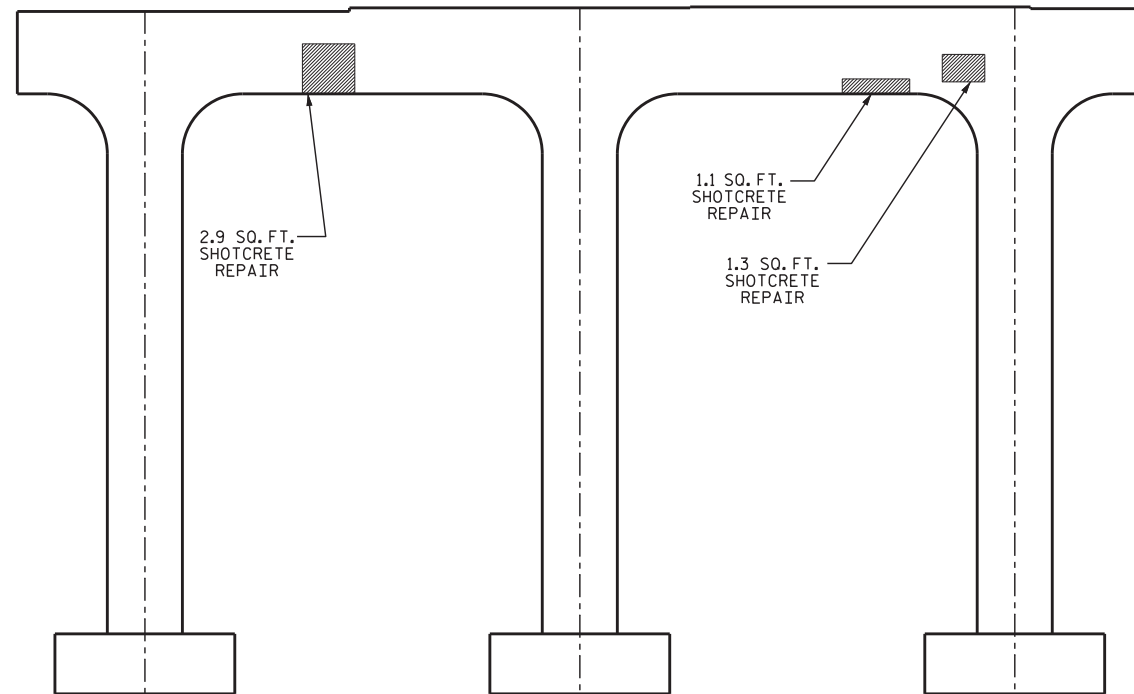
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-14
1			3			TOTAL SHEETS
2			4			24



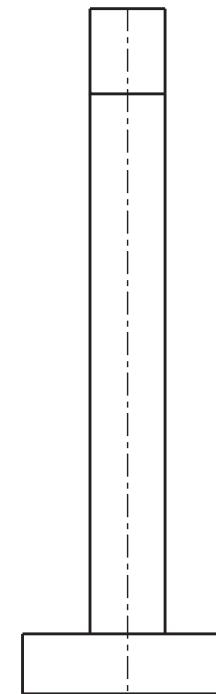
SPAN C
SPAN B

TOP OF CAP



ELEVATION

SPAN B | SPAN C



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 SPAN B FACE	ESTIMATE		ACTUAL	
	AREA SO. FT.	VOLUME CU. FT.	AREA SO. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	5.3	2.7		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		AREA SO. FT.		AREA SO. FT.
TOP OF CAP		121.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

BENT INFORMATION IS TAKEN FROM THE ROUTINE INSPECTION REPORT DATED 08/26/2021.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

SHOTCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CAP REPAIRS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

FOR BENT WIDENING DETAILS, SEE SHEETS S1-19 THRU S1-21.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

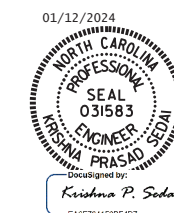
SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

ERI - EPOXY RESIN INJECTION

PROJECT NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154

SHEET 1 OF 2



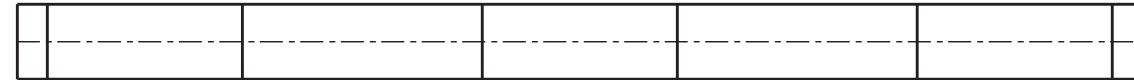
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT 2
 SPAN B FACE

DRAWN BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
 CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024

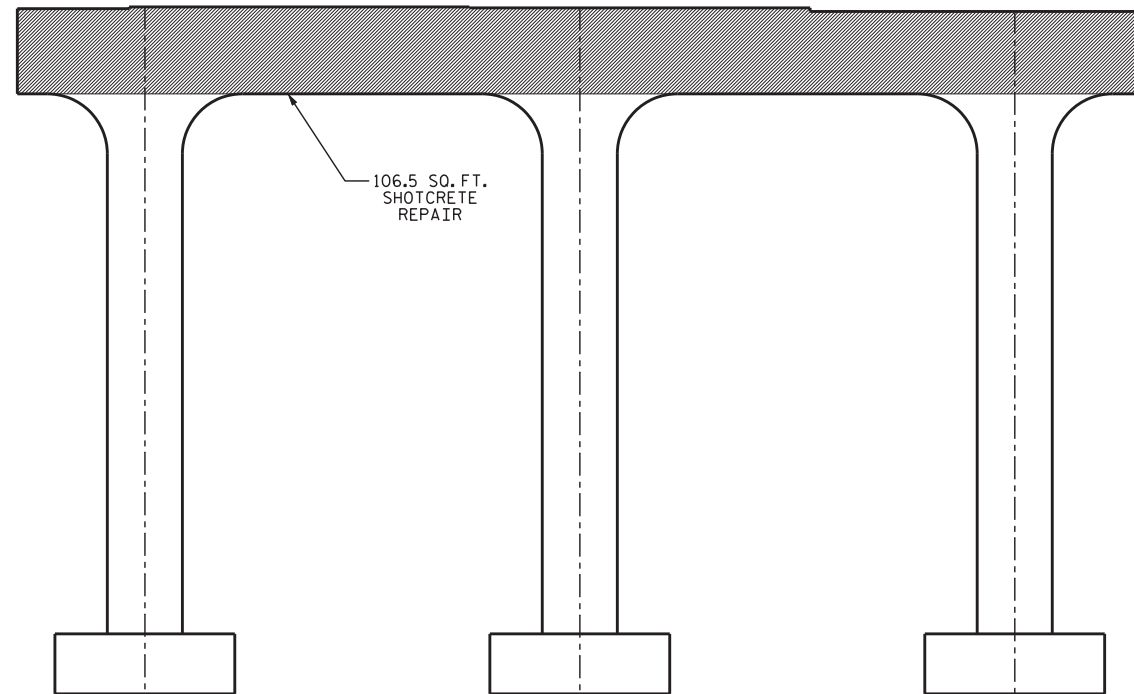
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-15
1			3			TOTAL SHEETS
2			4			24



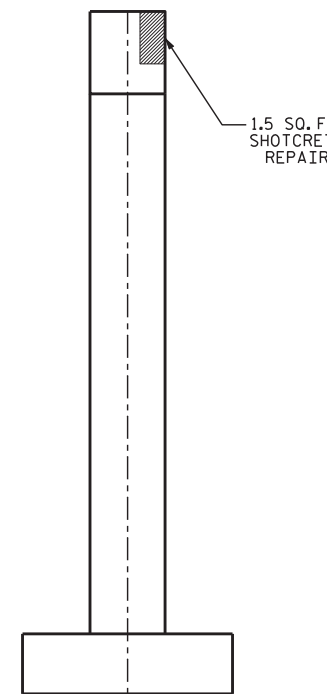
SPAN C
SPAN B

BOTTOM OF CAP



ELEVATION

SPAN C | SPAN B



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 SPAN C FACE	ESTIMATE		ACTUAL	
	AREA SO. FT.	VOLUME CU. FT.	AREA SO. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	108.0	54.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

BENT INFORMATION IS TAKEN FROM THE ROUTINE INSPECTION REPORT DATED 08/26/2021.

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

SHOTCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CAP REPAIRS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

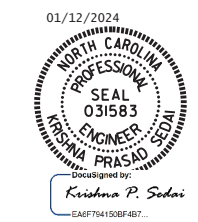
FOR BENT WIDENING DETAILS, SEE SHEETS S1-19 THRU S1-21.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ERI - EPOXY RESIN INJECTION

PROJECT NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 2
SPAN C FACE**

DRAWN BY : H.A. LOCKLEAR DATE : 10/2021
 CHECKED BY : REZA KOUICHEKI DATE : 03/2022

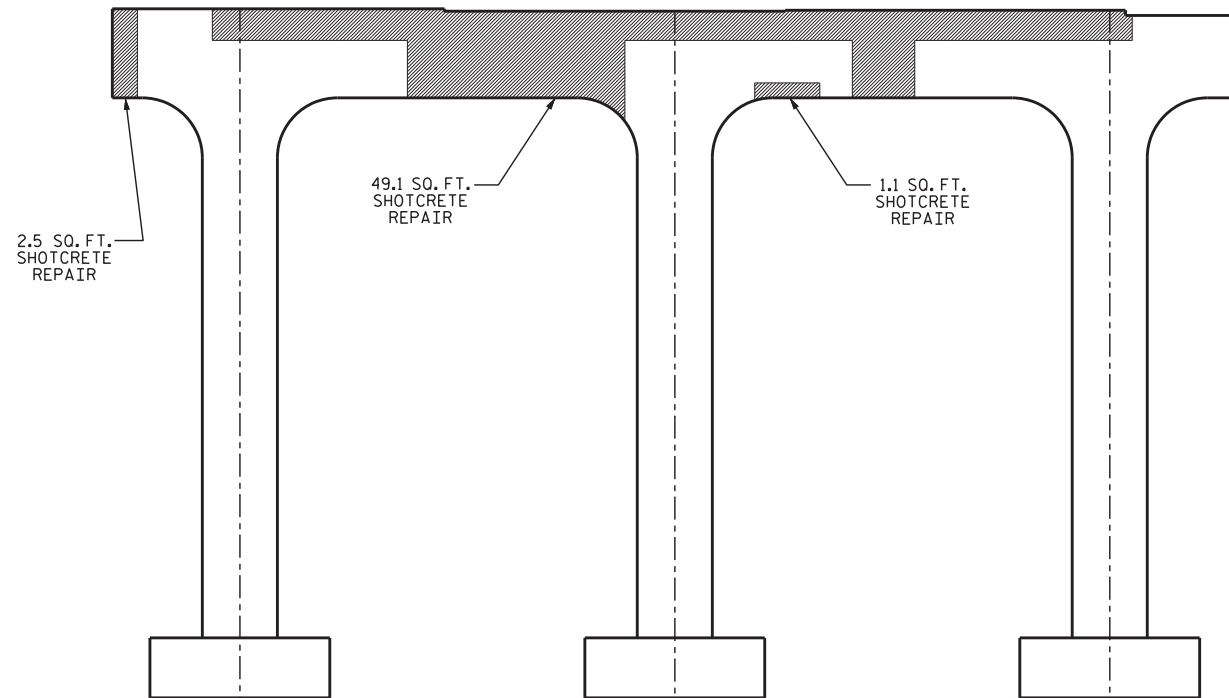
NO.	REVISIONS			SHEET NO.
	BY:	DATE:	NO.	
1			3	S1-16 TOTAL SHEETS 24
2			4	

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



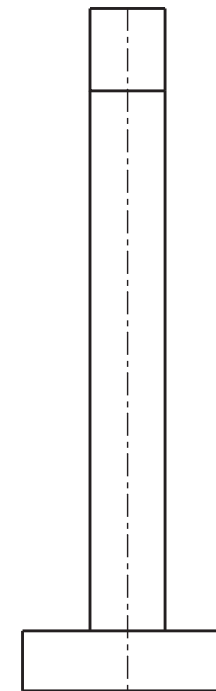
SPAN D
SPAN C

TOP OF CAP



ELEVATION

SPAN C | SPAN D



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 SPAN C FACE	ESTIMATE		ACTUAL	
	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	52.7	26.4		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		AREA SQ. FT.		AREA SQ. FT.
TOP OF CAP		121.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

NOTES

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SHOTCRETE REPAIRS MAYBE SUBSTITUTED IN LIEU OF CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.




FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CAP REPAIRS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

FOR BENT WIDENING DETAILS, SEE SHEETS S1-19 THRU S1-21.

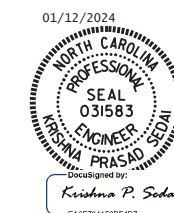
ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  ERI - EPOXY RESIN INJECTION

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

SHEET 1 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

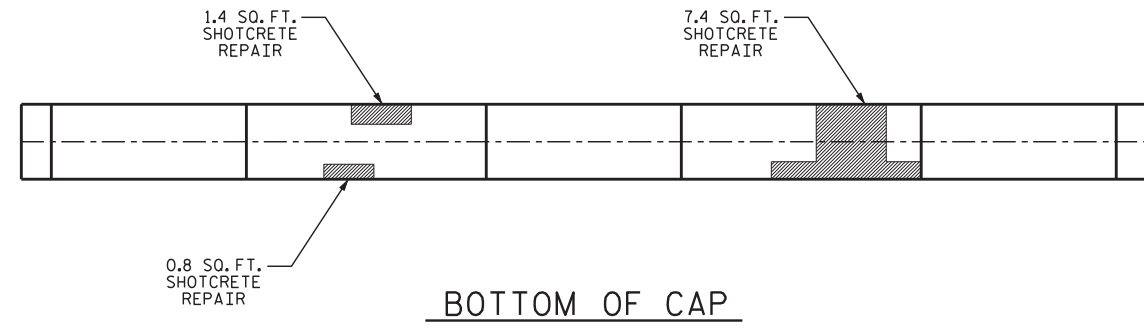
BENT 3
SPAN C FACE

DRAWN BY : H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
CHECKED BY : REZA KOUCHEKI/J. TILLMAN DATE : 01/2024

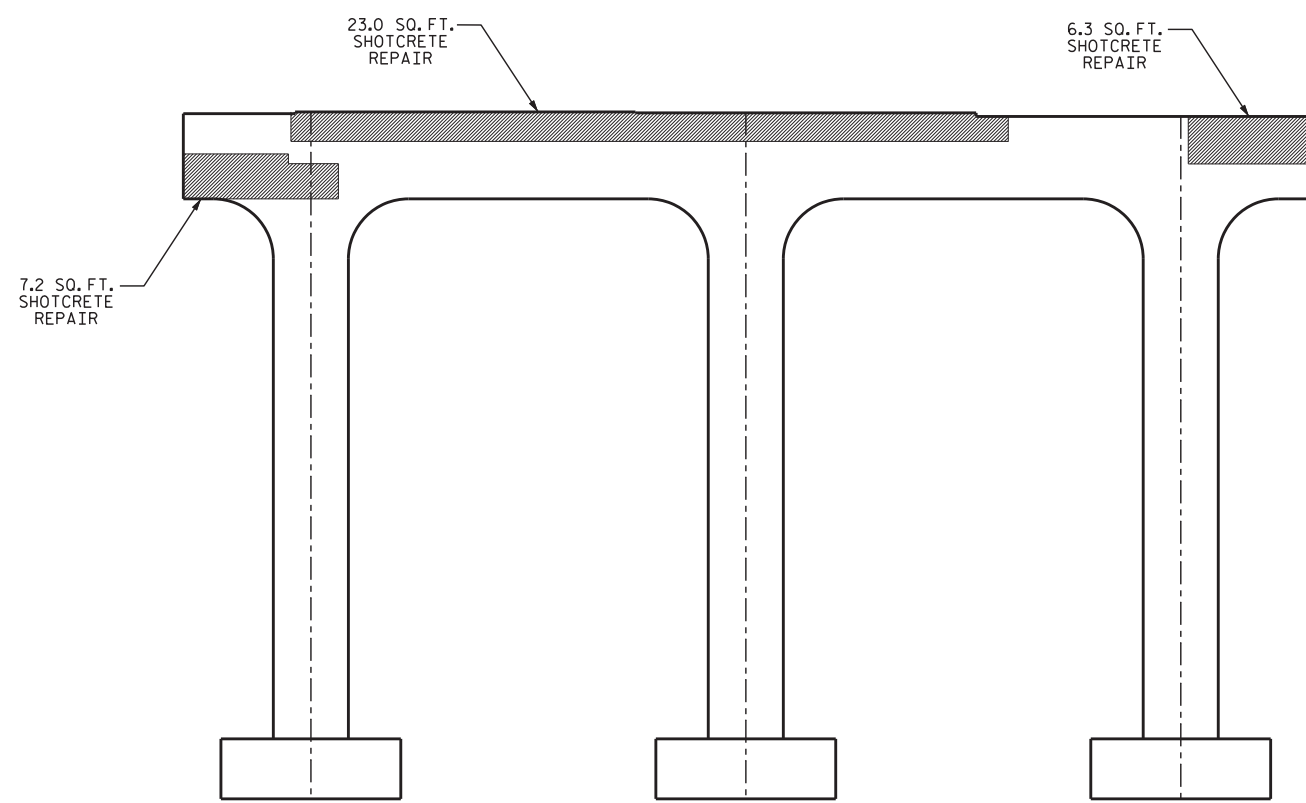
1/12/2024
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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

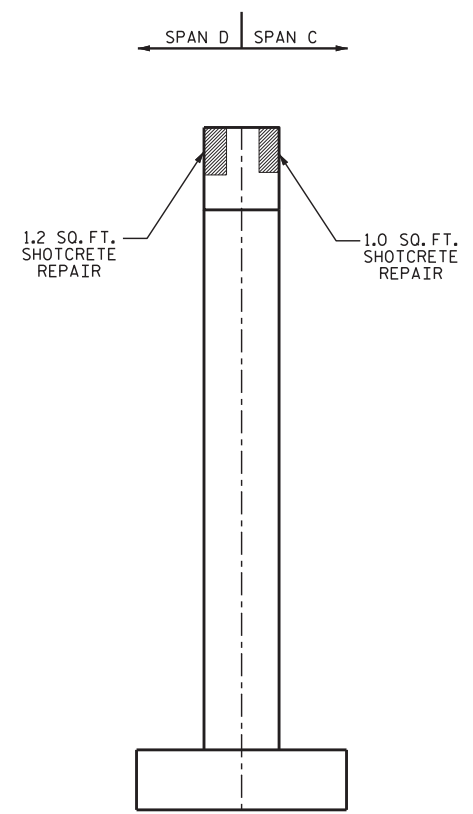
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-17
1			3			TOTAL SHEETS
2			4			24



SPAN D
SPAN C



ELEVATION



END VIEW

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 SPAN D FACE	ESTIMATE		ACTUAL	
	AREA SO. FT.	VOLUME CU. FT.	AREA SO. FT.	VOLUME CU. FT.
SHOTCRETE REPAIRS				
CAP	48.3	24.2		
COLUMN	0.0	0.0		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.	LIN. FT.	
CAP		0.0		
COLUMN		0.0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CAP REPAIRS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

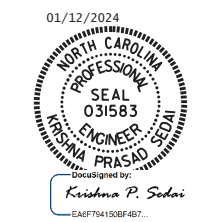
FOR BENT WIDENING DETAILS, SEE SHEETS S1-19 THRU S1-21.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- ERI - EPOXY RESIN INJECTION

PROJECT NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 3
SPAN D FACE**

DRAWN BY : H.A. LOCKLEAR DATE : 10/2021
 CHECKED BY : REZA KOUICHEKI DATE : 03/2022

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3				S1-18 TOTAL SHEETS 24
2				4				

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 FINAL UNLESS ALL
 SIGNATURES COMPLETED

NOTE:

REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

*602 & *602 DOWELS SHALL BE ADHESIVELY ANCHORED USING AN APPROVED ADHESIVE AND IN ACCORDANCE WITH SUBARTICLE 420-13 OF THE STANDARD SPECIFICATIONS. DOWELS SHALL BE INSTALLED TO THE MINIMUM EMBEDMENT INDICATED ON THE PLANS, UNLESS DEEPER EMBEDMENT IS REQUIRED BY THE ADHESIVE MANUFACTURER. LEVEL ONE FIELD TESTING IS REQUIRED AND THE YIELD LOAD OF THE *602 & *602 DOWELS IS 26 KIPS.

DIMENSIONS AND ELEVATIONS ARE BASED ON AS-BUILT DIMENSIONS AND SCOPING SURVEY INFORMATION. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS PRIOR TO CONSTRUCTION. REINFORCING AND CONCRETE CAP EXTENSIONS SHALL BE ADJUSTED TO MATCH FIELD VERIFIED DIMENSIONS PROVIDED THAT THE OUT-TO-OUT DIMENSIONS REMAIN AS DETAILED.

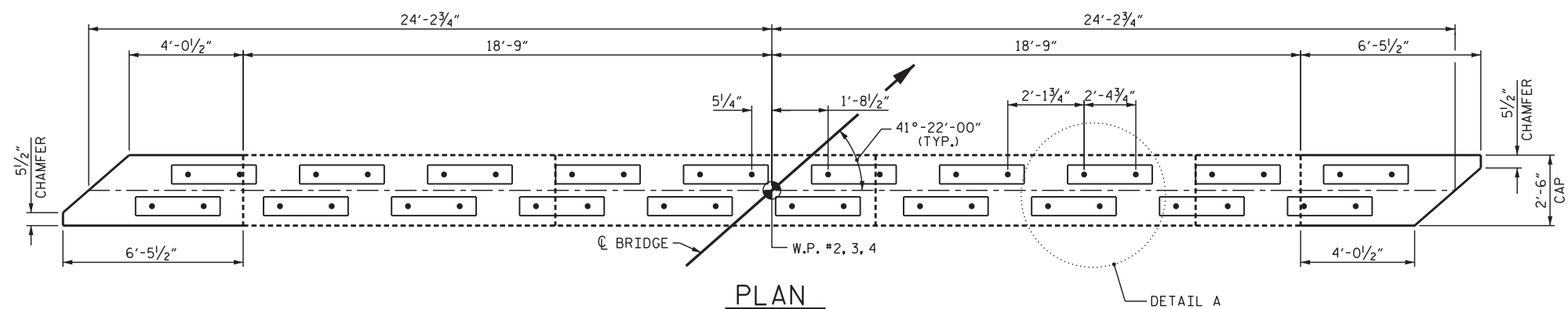
ELEVATIONS INDICATED ON THESE PLANS ARE TAKEN FROM THE ORIGINAL BRIDGE PLANS FROM 1956. CONTRACTOR MUST VERIFY THE EXISTING ELEVATIONS AND ANY CORRELATIONS BETWEEN ORIGINAL AND CURRENT DATUM INFORMATION, THE ORIGINAL PLAN ELEVATIONS, AND THE EXISTING CURRENT ELEVATIONS.

AFTER REPAIRS TO BENT CAP, TOP AND ENDS OF BENT CAP SHALL BE ROUGHEND AND BONDING AGENT SHALL BE PLACED APPROPRIATELY PRIOR TO PLACING NEW CONCRETE.

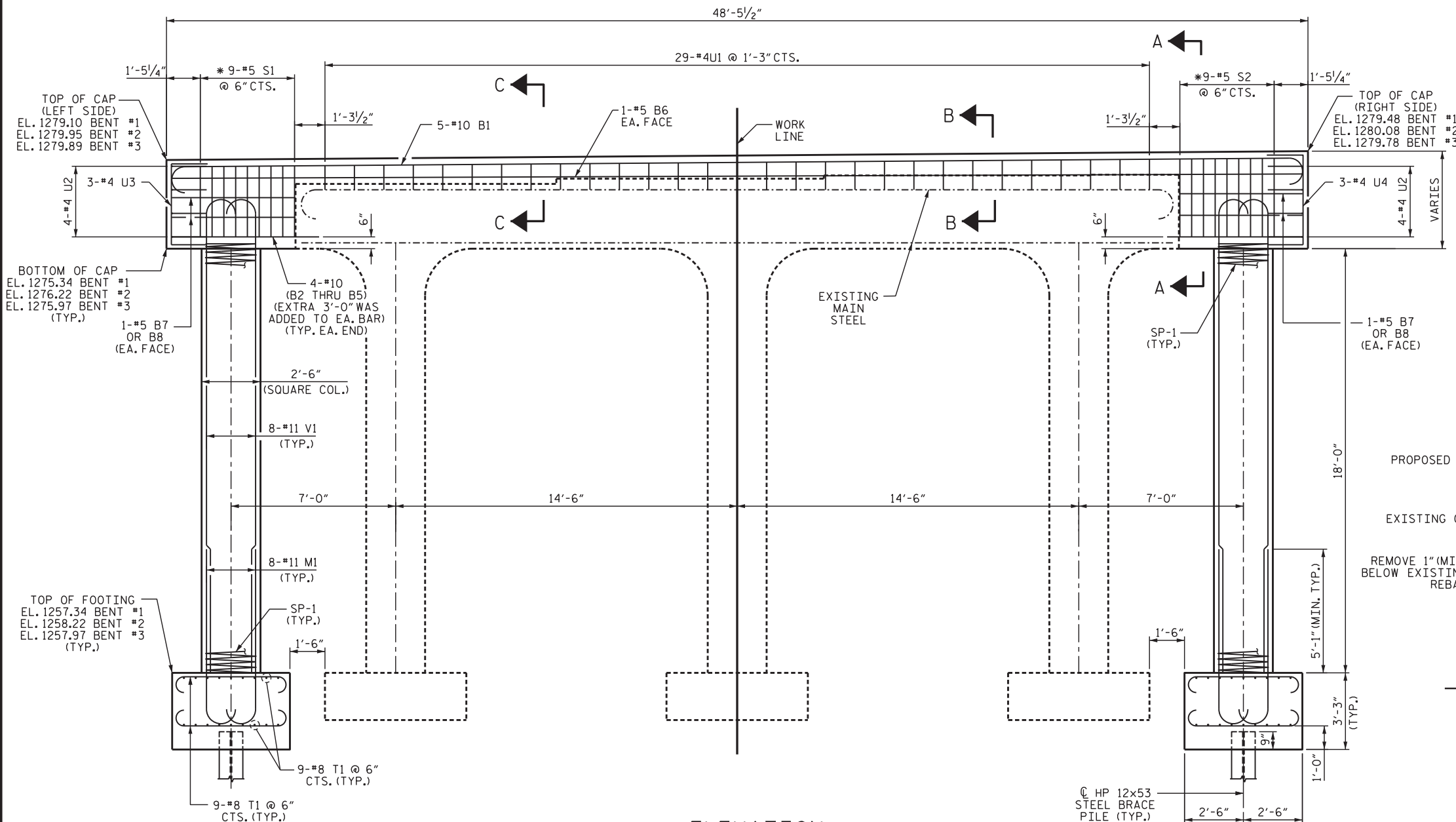
USE ELASTOMERIC BEARING PAD, TYPE I AT BENTS 1 & 3.

USE ELASTOMERIC BEARING PAD, TYPE II AT BENT 2.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO THE DEPARTMENT.

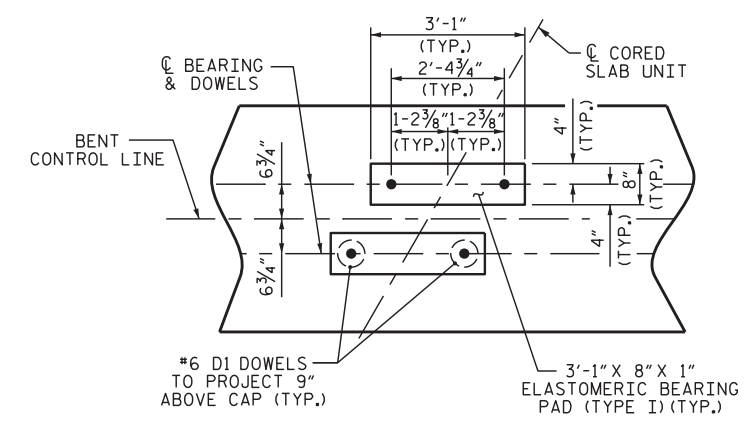


PLAN



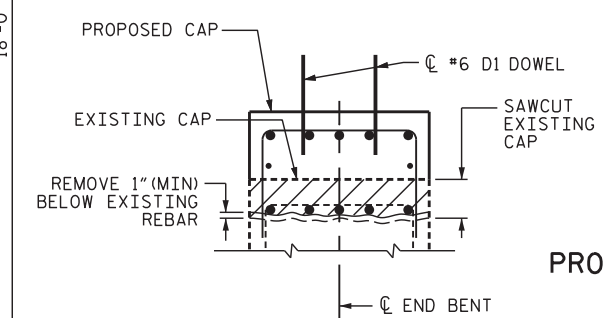
ELEVATION

* INVERT ALTERNATE STIRRUPS



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)



SECTION C-C

(SAW CUT DETAIL)
(EXISTING CAP TYP.)

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

SHEET 1 OF 3

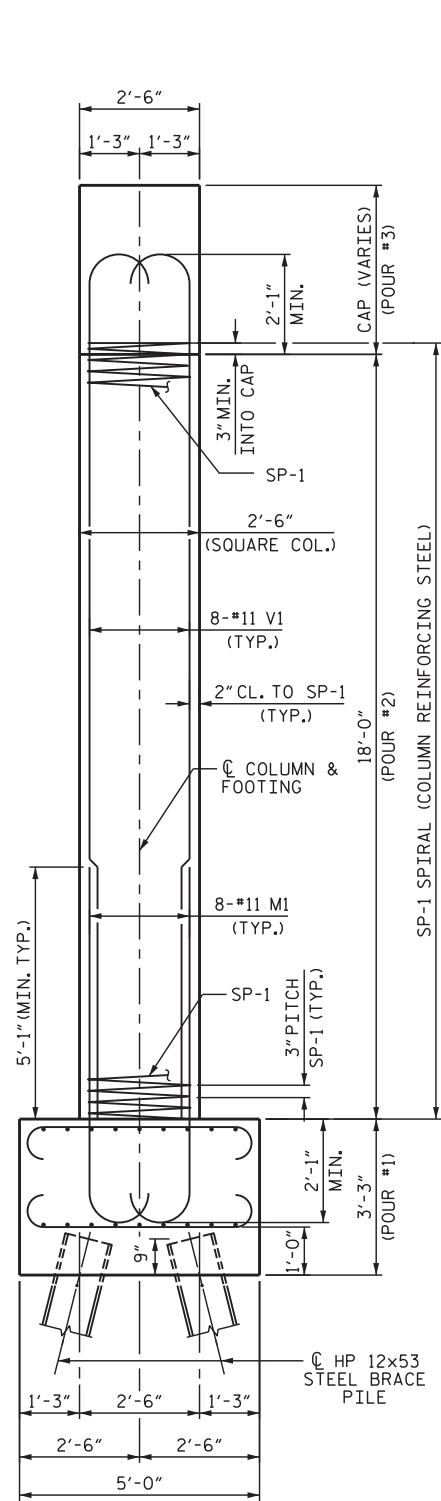


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

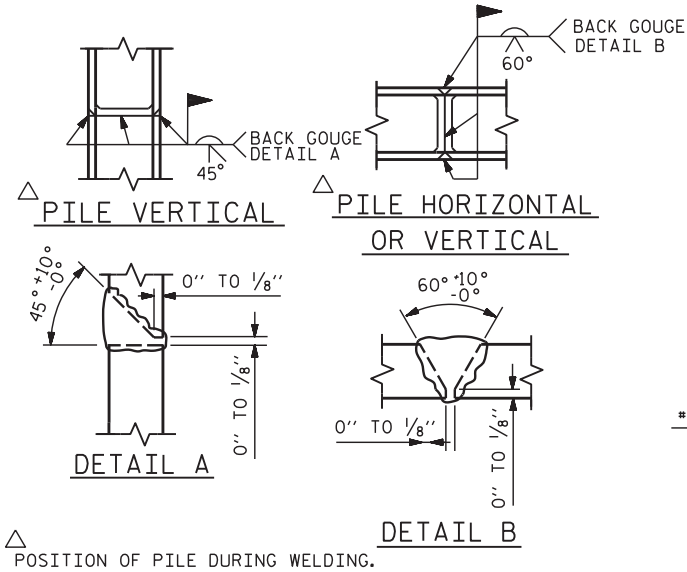
**BENTS 1, 2 & 3
WIDENING**

DRAWN BY : M. G. SHAIKH DATE : 11/2021
CHECKED BY : H. LOCKLEAR DATE : 11/2021
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 11/2021

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-19
1			3			TOTAL SHEETS
2			4			24

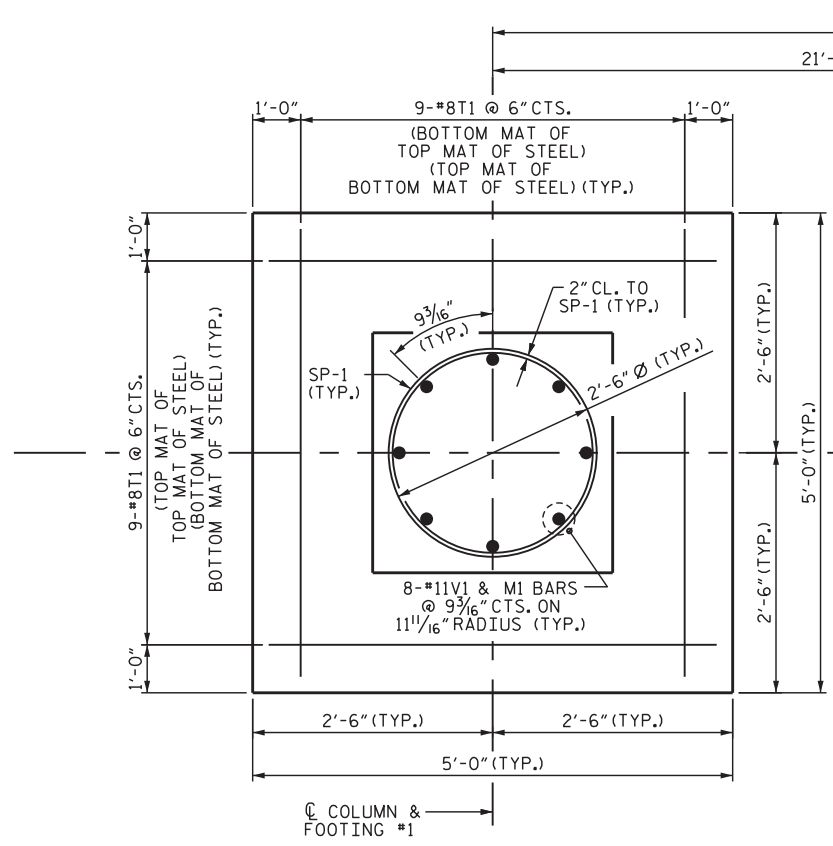


END ELEVATION



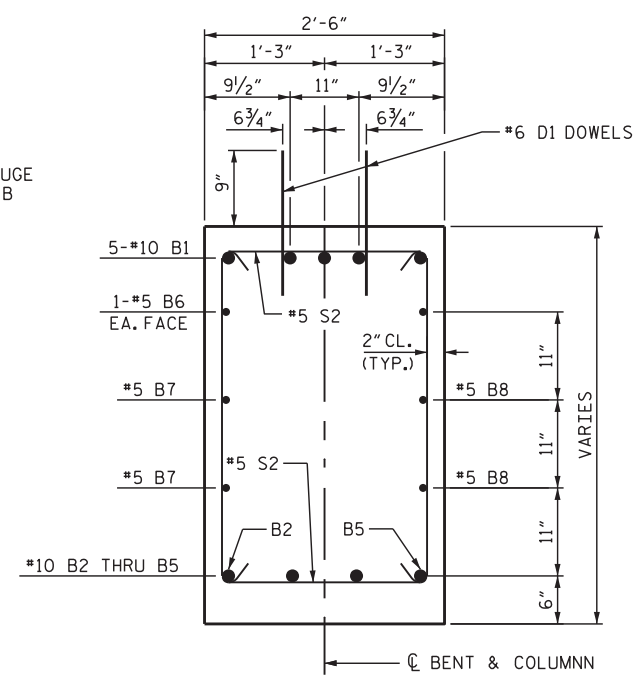
PILE SPLICE DETAILS

△ POSITION OF PILE DURING WELDING.

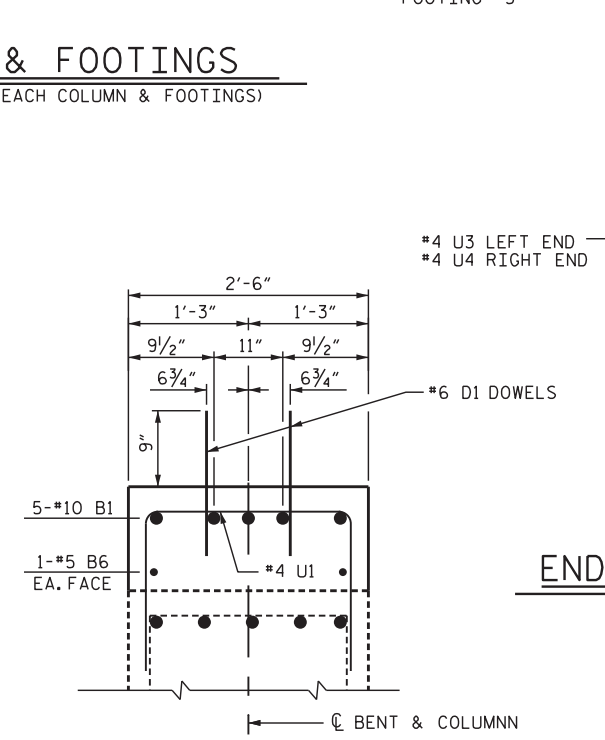


PLAN OF COLUMNS & FOOTINGS

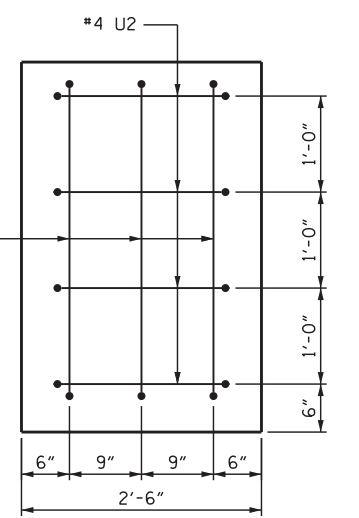
(REINFORCING STEEL IS TYPICAL FOR EACH COLUMN & FOOTINGS)



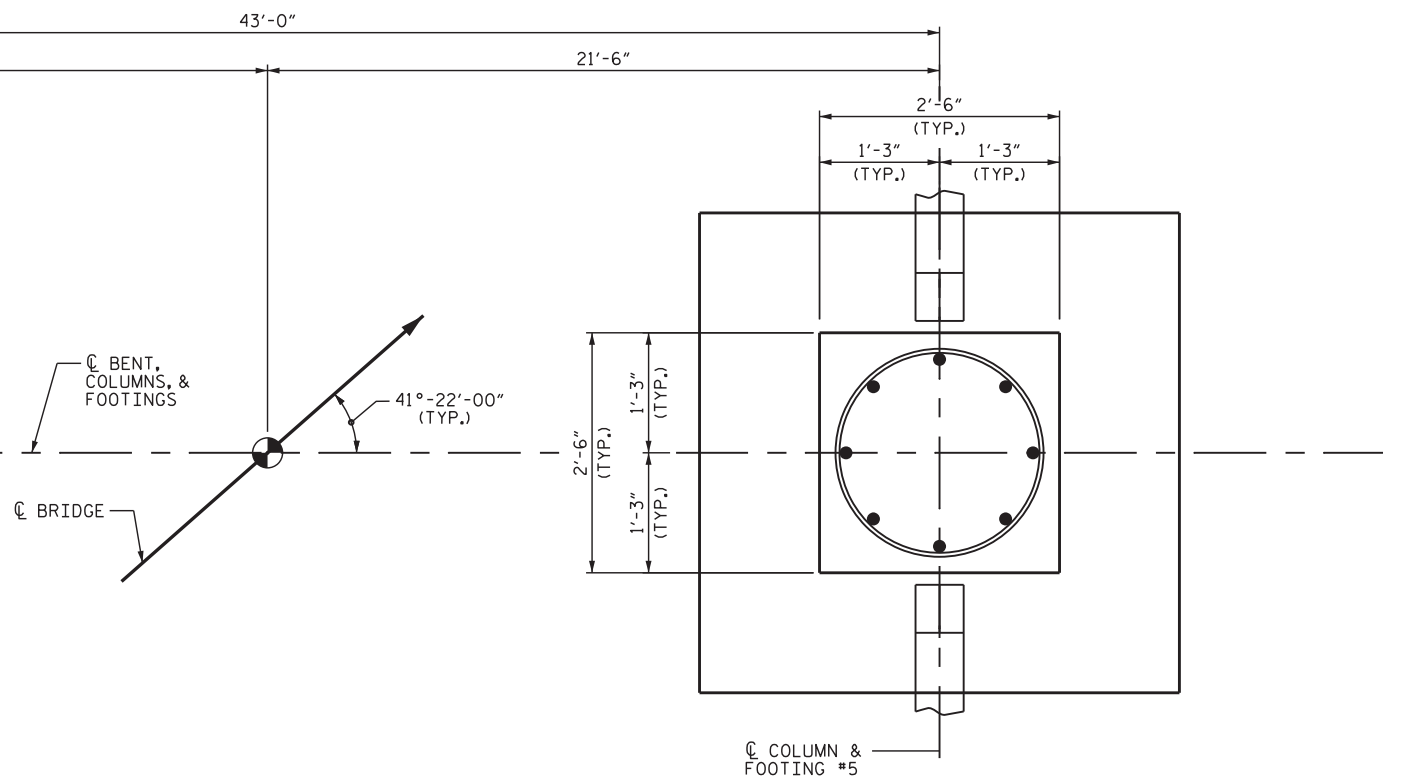
SECTION A-A



SECTION B-B



ENDS OF CAP DETAIL



PROJECT NO. 41665.15C
 BURKE COUNTY
 BRIDGE NO. 110154

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

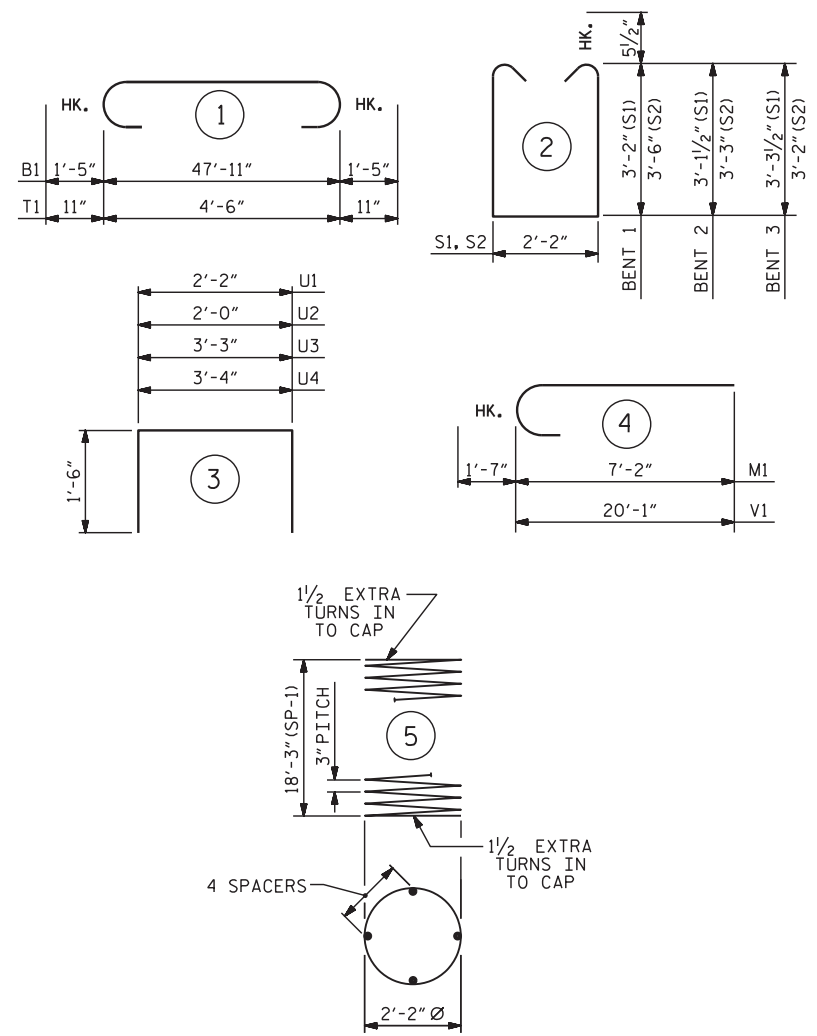
**BENTS 1, 2 & 3
 WIDENING**

DRAWN BY :	M. G. SHAIKH	DATE :	11/2021
CHECKED BY :	H. LOCKLEAR	DATE :	11/2021
DESIGN ENGINEER OF RECORD :	H. LOCKLEAR	DATE :	11/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-20
1			3			TOTAL SHEETS
2			4			24

BAR TYPE				BILL OF MATERIAL													
				BENT 1				BENT 2				BENT 3					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#10	1	50'-9"	1092	B1	5	#10	1	50'-9"	1092	B1	5	#10	1	50'-9"	1092
B2	2	#10	STR	7'-0"	60	B2	2	#10	STR	7'-0"	60	B2	2	#10	STR	7'-0"	60
B3	2	#10	STR	7'-10"	67	B3	2	#10	STR	7'-10"	67	B3	2	#10	STR	7'-10"	67
B4	2	#10	STR	8'-7"	74	B4	2	#10	STR	8'-7"	74	B4	2	#10	STR	8'-7"	74
B5	2	#10	STR	9'-4"	80	B5	2	#10	STR	9'-4"	80	B5	2	#10	STR	9'-4"	80
B6	2	#5	STR	48'-1"	100	B6	2	#5	STR	48'-1"	100	B6	2	#5	STR	48'-1"	100
B7	4	#5	STR	4'-0"	17	B7	4	#5	STR	4'-0"	17	B7	4	#5	STR	4'-0"	17
B8	4	#5	STR	6'-4"	26	B8	4	#5	STR	6'-4"	26	B8	4	#5	STR	6'-4"	26
D1	40	#6	STR	1'-6"	90	D1	40	#6	STR	1'-6"	90	D1	40	#6	STR	1'-6"	90
M1	16	#11	4	8'-9"	744	M1	16	#11	4	8'-9"	744	M1	16	#11	4	8'-9"	744
S1	9	#5	2	9'-5"	88	S1	9	#5	2	9'-4"	88	S1	9	#5	2	9'-4"	88
S2	9	#5	2	10'-1"	95	S2	9	#5	2	9'-7"	90	S2	9	#5	2	9'-8"	91
T1	36	#8	1	6'-4"	609	T1	36	#8	1	6'-4"	609	T1	36	#8	1	6'-4"	609
U1	29	#4	3	5'-2"	100	U1	29	#4	3	5'-2"	100	U1	29	#4	3	5'-2"	100
U2	8	#4	3	5'-0"	27	U2	8	#4	3	5'-0"	27	U2	8	#4	3	5'-0"	27
U3	3	#4	3	6'-3"	13	U3	3	#4	3	6'-3"	13	U3	3	#4	3	6'-3"	13
U4	3	#4	3	6'-4"	13	U4	3	#4	3	6'-4"	13	U4	3	#4	3	6'-4"	13
V1	16	#11	4	21'-8"	1,842	V1	16	#11	4	21'-8"	1,842	V1	16	#11	4	21'-8"	1,842
REINFORCING STEEL				LBS.	5,137	REINFORCING STEEL				LBS.	5,134	REINFORCING STEEL				LBS.	5,134
SP-1	2	*	5	507'-9"	678	SP-1	2	*	5	507'-9"	678	SP-1	2	*	5	507'-9"	678
SPIRAL COLUMN REINFORCING STEEL				LBS.	678	SPIRAL COLUMN REINFORCING STEEL				LBS.	678	SPIRAL COLUMN REINFORCING STEEL				LBS.	678
* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.						* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.						* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.					
CLASS A CONCRETE						CLASS A CONCRETE						CLASS A CONCRETE					
POUR #3 (CAP)				C.Y.	9.7	POUR #3 (CAP)				C.Y.	9.1	POUR #3 (CAP)				C.Y.	9.1
POUR #2 (COLUMNS)				C.Y.	8.3	POUR #2 (COLUMNS)				C.Y.	8.3	POUR #2 (COLUMNS)				C.Y.	8.3
POUR #1 (FOOTINGS)				C.Y.	6.0	POUR #1 (FOOTINGS)				C.Y.	6.0	POUR #1 (FOOTINGS)				C.Y.	6.0
TOTAL CLASS A CONCRETE				C.Y.	24.0	TOTAL CLASS A CONCRETE				C.Y.	23.4	TOTAL CLASS A CONCRETE				C.Y.	23.4
HP 12 X 53 STEEL PILS						HP 12 X 53 STEEL PILS						HP 12 X 53 STEEL PILS					
NO.4				LIN .FT.	160	NO.4				LIN .FT.	160	NO.4				LIN .FT.	140
PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES					NO. 4	PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES					NO. 4	PILE DRIVING EQUIPMENT SET UP FOR HP 12 X 53 STEEL PILES					NO. 4



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENTS 1, 2 & 3 WIDENING

DRAWN BY : M. G. SHAIKH DATE : 11/2021
CHECKED BY : H. LOCKLEAR DATE : 11/2021
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 11/2021

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-21
1			3			TOTAL SHEETS
2			4			24

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES

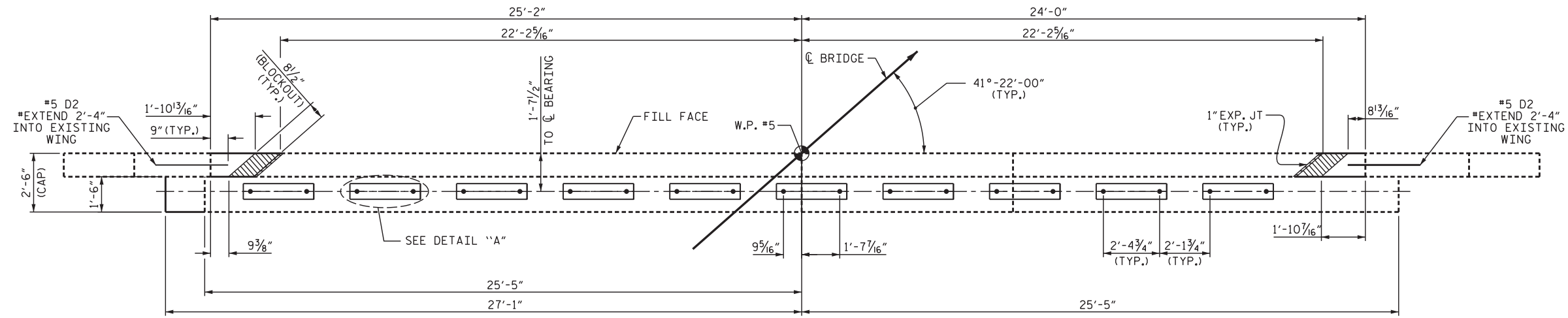
REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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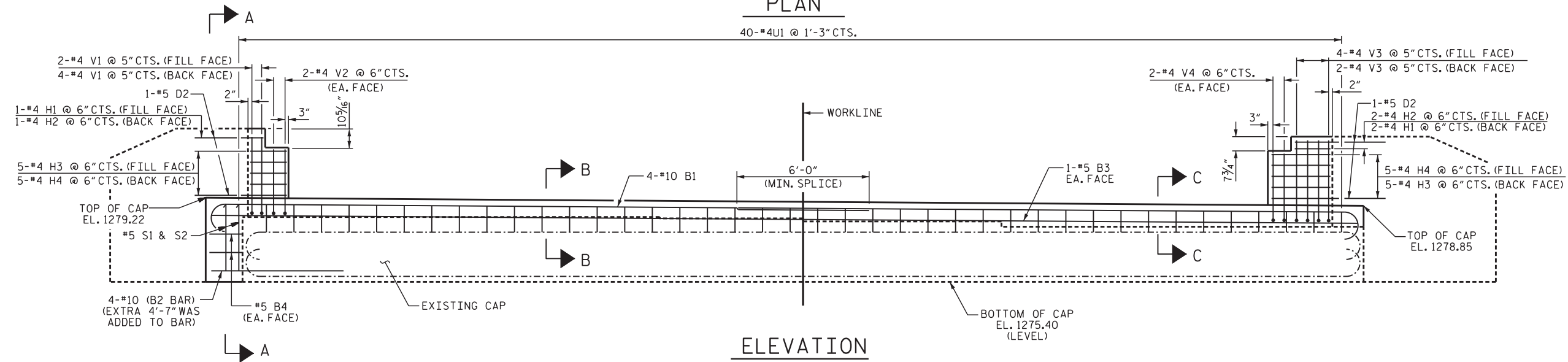
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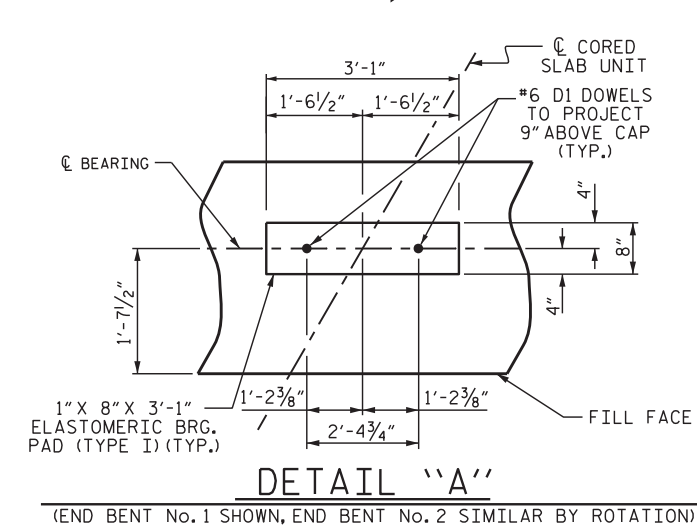


PLAN

40-#4U1 @ 1'-3" CTS.

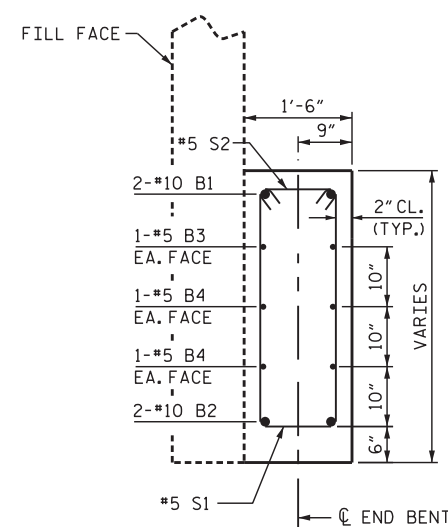


ELEVATION

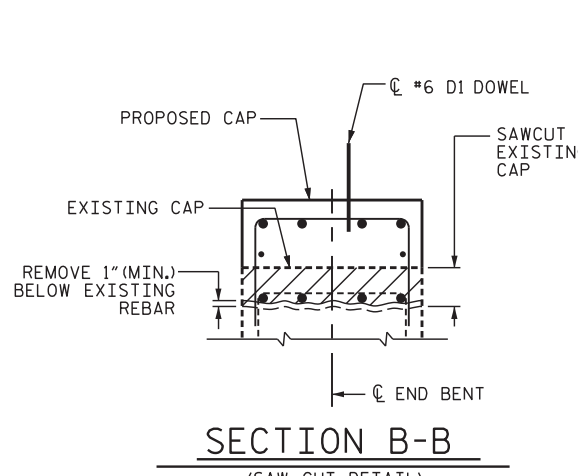


DETAIL "A"

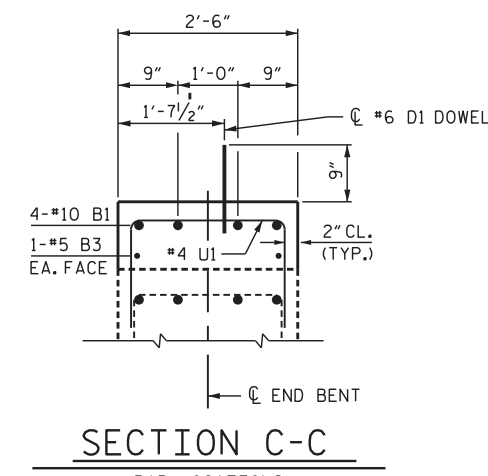
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



SECTION A-A



SECTION B-B
(SAW CUT DETAIL)
(EXISTING CAP TYP.)



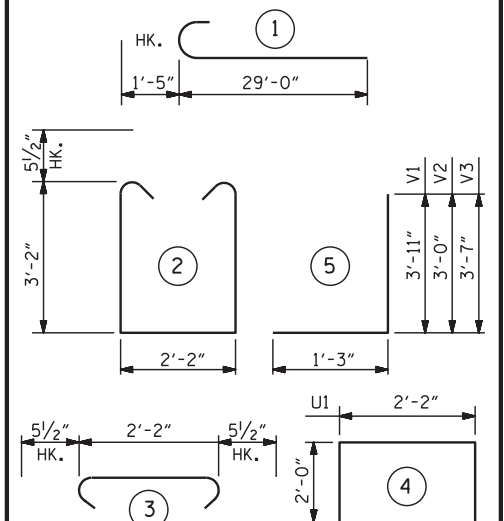
SECTION C-C
(BAR LOCATIONS)

BILL OF MATERIAL

END BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#10	1	30'-5"	1047
B2	4	#10	STR	6'-0"	103
B3	2	#5	STR	52'-2"	109
B4	4	#5	STR	1'-6"	6
D1	20	#6	STR	1'-6"	45
D2	4	#5	STR	3'-1"	13
H1	3	#4	STR	1'-3"	3
H2	3	#4	STR	1'-7"	3
H3	10	#4	STR	2'-4"	16
H4	10	#4	STR	1'-7"	11
S1	2	#5	2	9'-5"	20
S2	2	#5	3	3'-1"	6
U1	40	#4	4	6'-2"	165
V1	6	#4	5	5'-2"	21
V2	4	#4	5	4'-3"	11
V3	6	#4	5	4'-10"	19
REINFORCING STEEL					1598 LBS.
CLASS A CONCRETE					5.5 CU. YDS.

BAR TYPES

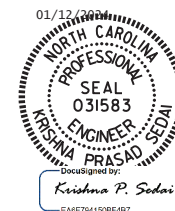


ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. 41665.15C
BURKE COUNTY
BRIDGE NO. 110154

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

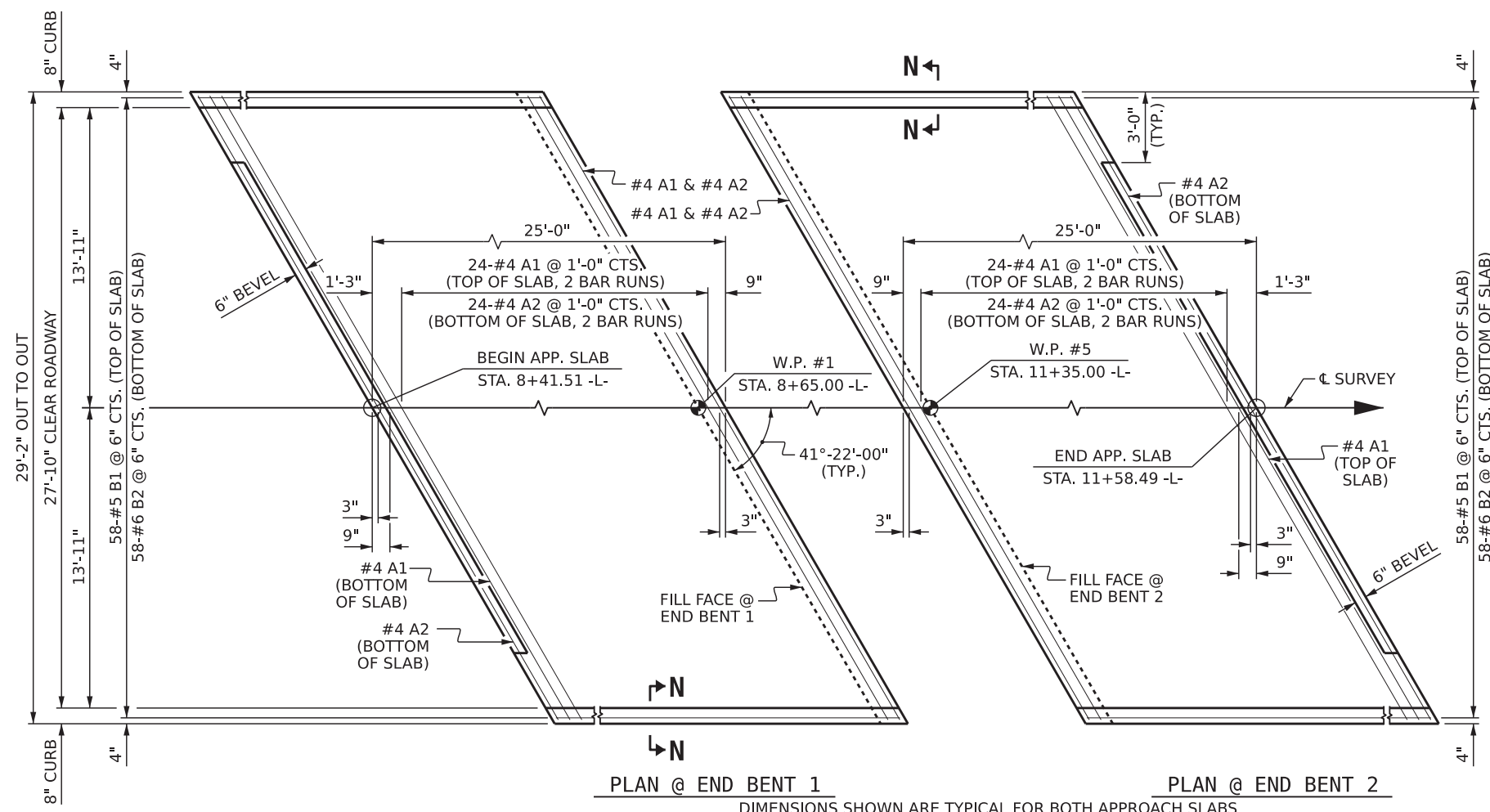
END BENT 2



DRAWN BY: M. G. SHAIKH DATE: 11/2021
CHECKED BY: H. LOCKLEAR DATE: 11/2021
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE: 11/2021

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-22
1			3			TOTAL SHEETS 24
2			4			



PLAN @ END BENT 1 PLAN @ END BENT 2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLABS SHALL BE POURED AFTER CONCRETE WEARING SURFACE IS POURED.

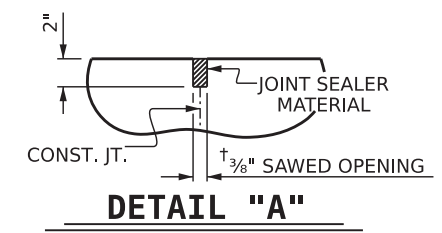
APPROACH SLAB GROOVING IS NOT REQUIRED.

THE JOINT OPENING AT THE APPROACH SLAB/DECK INTERFACE SHALL BE SAWSAWED NO MORE THAN 12 HOURS AFTER THE APPROACH SLAB IS CAST. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1028-3 OF THE STANDARD SPECIFICATIONS.

SEE TABLE FOR ESTIMATED QUANTITIES.

FOR "BRIDGE APPROACH FILL", SEE SPECIAL PROVISIONS.

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	52	#4	STR	22'-10"	793
A2	52	#4	STR	22'-8"	787
*B1	58	#5	STR	23'-10"	1442
B2	58	#6	STR	24'-5"	2127
REINFORCING STEEL					LBS. 2914
* EPOXY COATED REINFORCING STEEL					LBS. 2235
CLASS AA CONCRETE					C. Y. 53.6
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	52	#4	STR	22'-10"	793
A2	52	#4	STR	22'-8"	787
*B1	58	#5	STR	23'-10"	1442
B2	58	#6	STR	24'-5"	2127
REINFORCING STEEL					LBS. 2914
* EPOXY COATED REINFORCING STEEL					LBS. 2235
CLASS AA CONCRETE					C. Y. 53.6

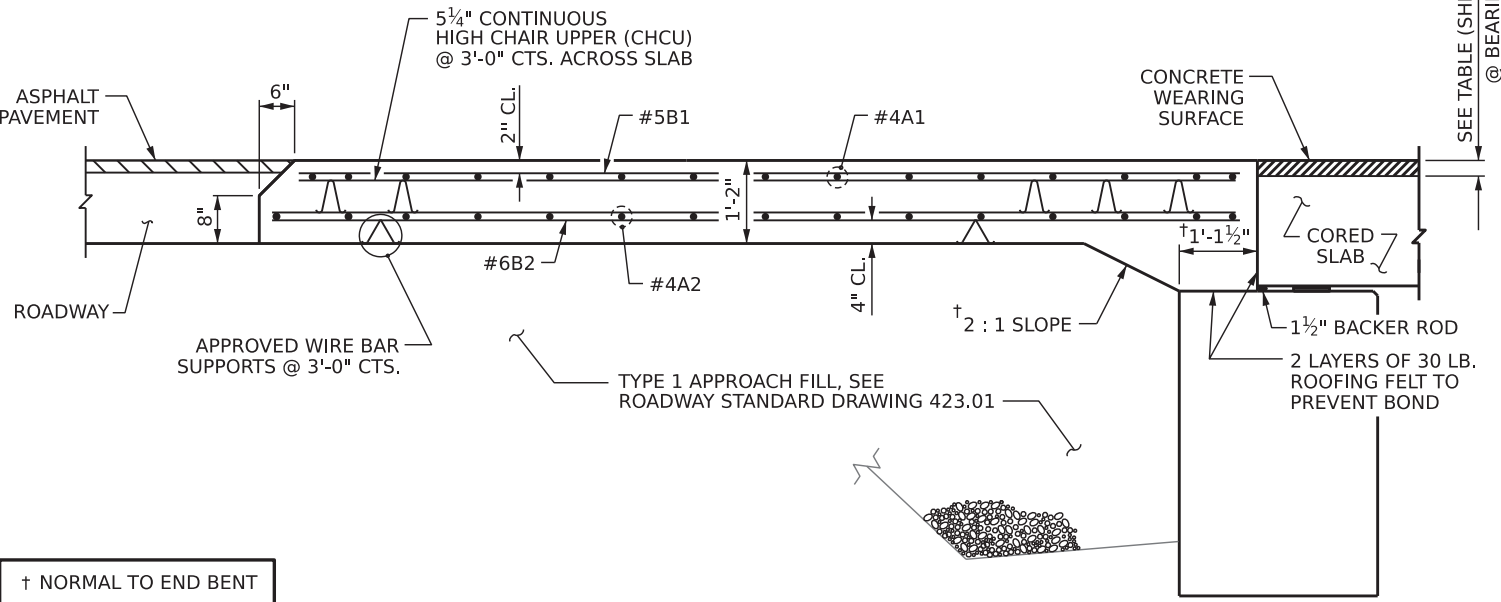


DETAIL "A"

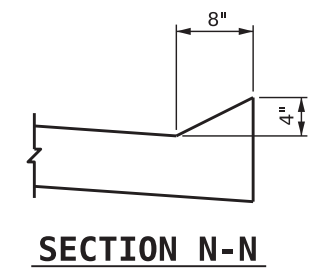
BRIDGE APPROACH FILL ESTIMATES

EXCAVATION	* 124 CU. YDS.
GEOTEXTILES TYPE 1	* 148 SQ. YDS.
GEOTEXTILES (TYPE 4a)	* 290 SQ. YDS.
SELECT MATERIAL (CLASS V OR VI)	* 124 CU. YDS.
OUTLET PIPE	* 1 EA
6" OUTLET PIPE	* 30 LIN. FT.

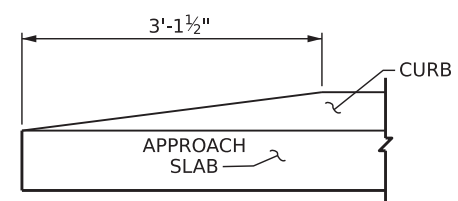
* QUANTITIES ON THIS TABLE ARE FOR INFORMATION PURPOSES ONLY. (COMBINED ESTIMATES FOR BOTH ABUTMENTS)



SECTION THRU SLAB



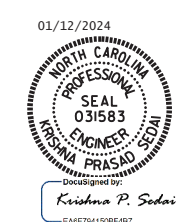
SECTION N-N



CURB DETAILS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

PROJECT NO. **41665.15C**
BRUKE COUNTY
 STATION: **110154**
 SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

ASSEMBLED BY: H.A. LOCKLEAR/E. BAYISSA DATE : 01/2024
 CHECKED BY: REZA KOUCHEKI/J. TILLMAN DATE : 01/2024
 DRAWN BY: FCJ 6/87
 CHECKED BY: EGA 6/87

REV. 6/13 MAA/GM
 REV. 12/17 MAA/THC
 REV. 07/23 BNB/SNM

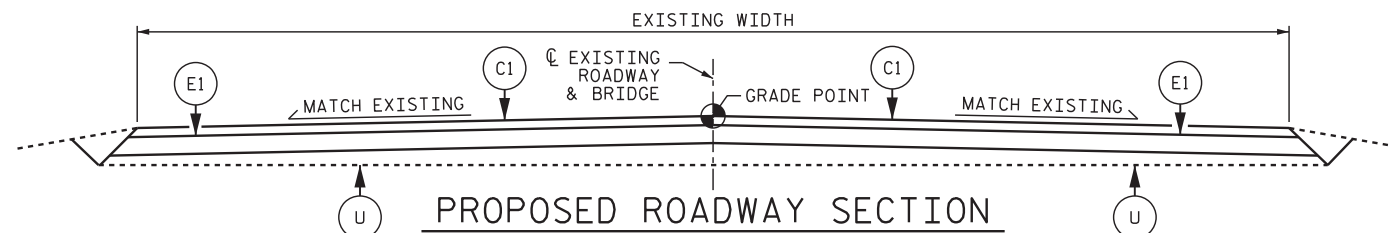
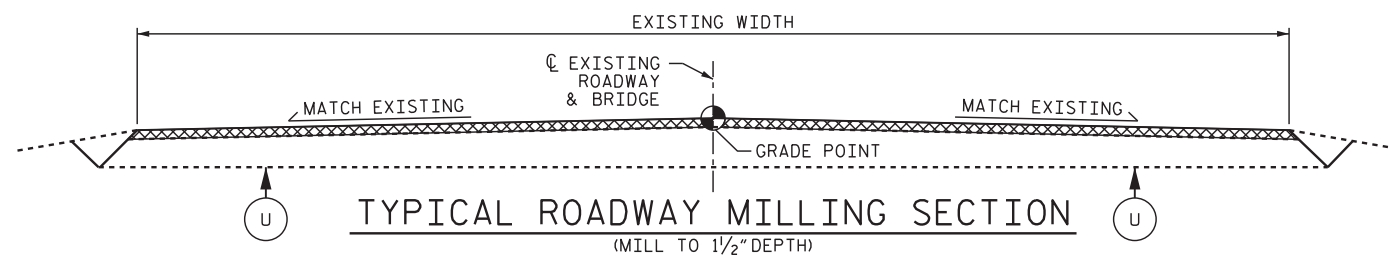
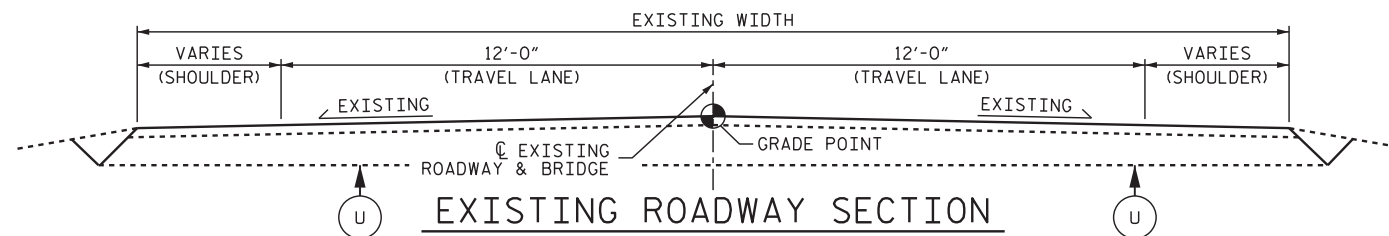
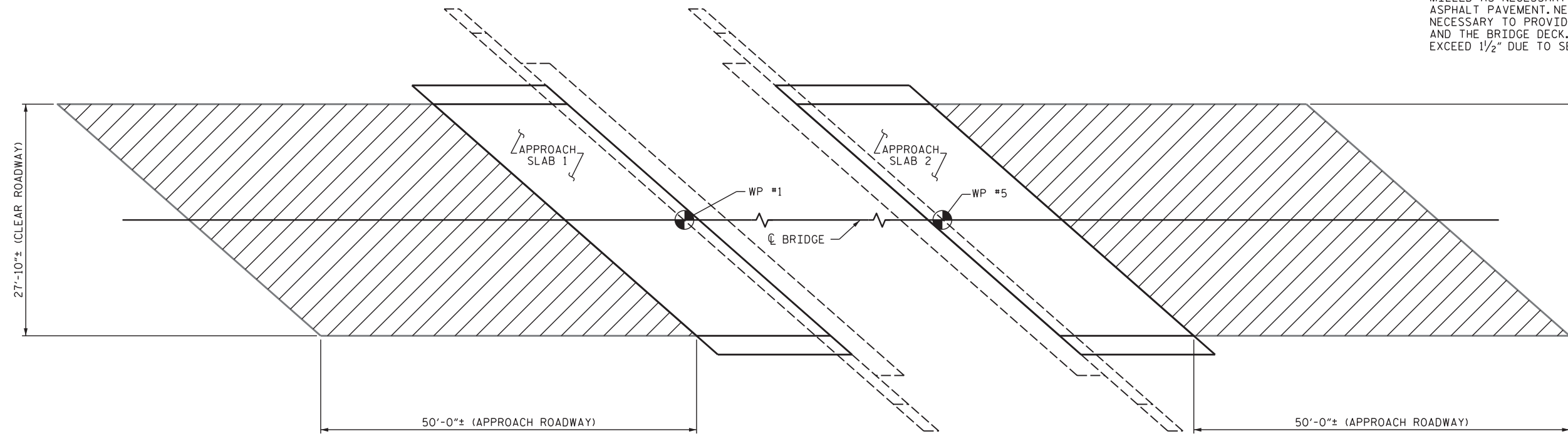
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REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
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2			4	

TOTAL SHEETS 24

NOTES

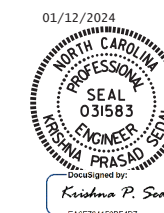
INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.



SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	309.3 SQ. YD.	
ASPHALT CONCRETE BASE COURSE, TYPE B25.0C	30.0 TONS	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	30.0 TONS	
ASPHALT BINDER FOR PLANT MIX	4.0 TONS	

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5" IN DEPTH.
U	EXISTING PAVEMENT

PROJECT NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**INCIDENTAL MILLING
 & TYPICAL ROADWAY
 SECTIONS**

DRAWN BY : E. CABELL DATE : 03/2022
 CHECKED BY : A.M. LEE DATE : 03/2022

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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-24
1			3			TOTAL SHEETS
2			4			24

NOTES

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

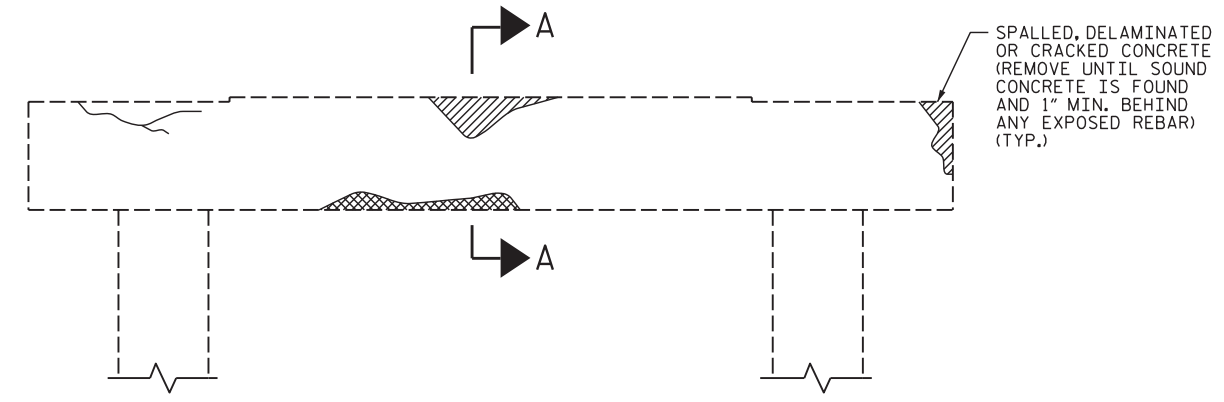
PROJ. NO. 41665.15C
BURKE COUNTY
 BRIDGE NO. 110154



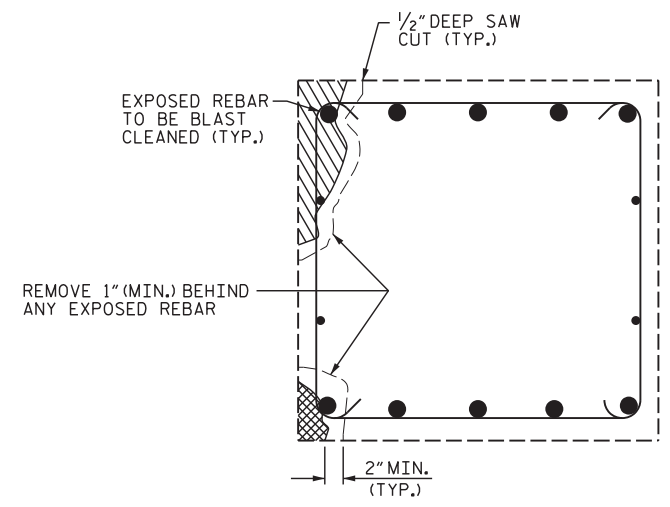
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SD-01
1			3			TOTAL SHEETS
2			4			1

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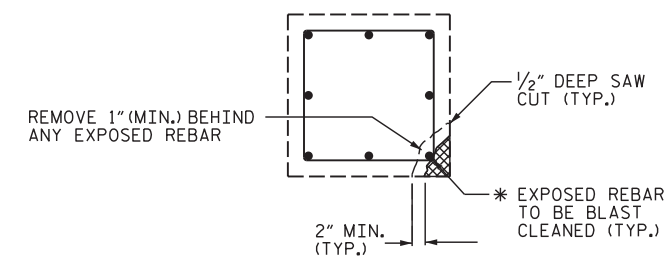


BENT CAP REPAIRS



SECTION A-A

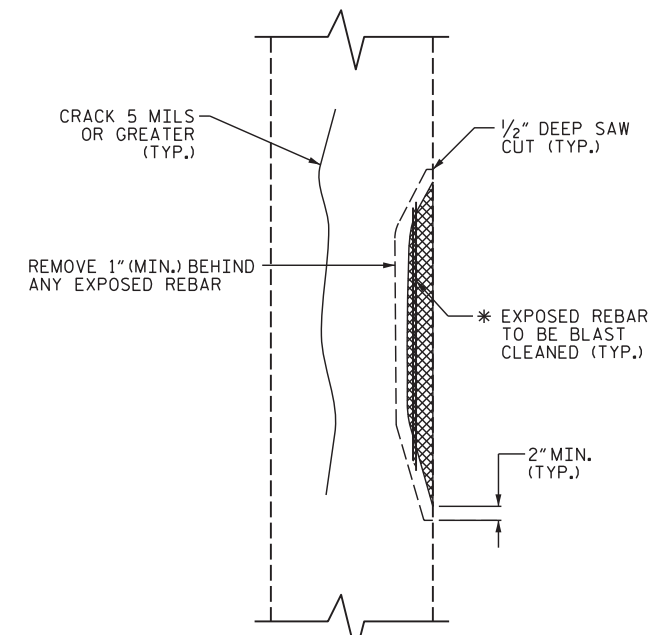
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)



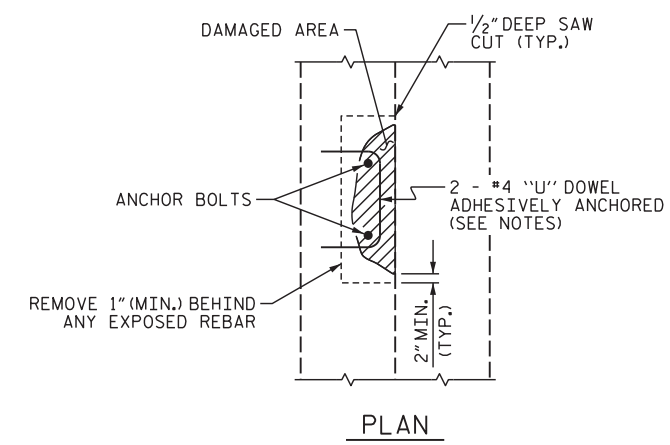
ELEVATION OF COLUMN

COLUMN REPAIR

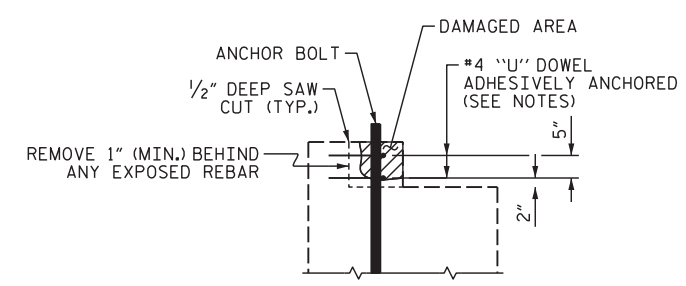
* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

SPLICE LENGTH TABLE

BAR SIZE	MIN. SPLICE LENGTH
#4	2'-4"
#5	2'-9"
#6	4'-0"
#7	5'-3"
#8	6'-9"
#9	8'-6"
#10	10'-11"
#11	13'-4"



PLAN



ELEVATION

PEDESTAL WALL REPAIR

ASSEMBLED BY : R. SAHA DATE : 02/2022
 CHECKED BY : H.A. LOCKLEAR DATE : 02/2022
 DRAWN BY : NAP 8/18
 CHECKED BY :

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ " OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.